

From: Schmidt, Jake
Sent: Mon 4/1/2013 11:56:07 AM
Subject: Int'l Climate Update: wind & solar keep growing, will China's leaders clean up the environment, aviation needs more action, and more

Here are some NRDC blog posts and other material that I thought you would find interesting (click on the link in the intro paragraphs to go directly to that topic). **Let me know if you would like to be removed from this distribution or know of someone that wants to be added.** Best regards, Jake

The largest rally in the U.S. dedicated to climate change generated huge enthusiasm for action, with 62% of Americans favor setting stricter emission limits on power plants in order to address climate change. President Obama hints at stronger climate action to come and Secretary Kerry speaks forcefully about the need for action. And the Senate rejects a bid to block EPA from setting carbon pollution standards on power plants.

Clean energy keeps surging globally, with wind, solar, and geothermal growing in lots of places. A new assessment projects that clean energy will double in the next 10 years. A new Deutsche Bank study found that grid parity has already been reached for solar in some countries and more are predicted in 2014. Renewable energy investments in India could get a bump as the government proposed to continue incentives for wind power, the European Investment Bank loans India almost \$200 million for renewable energy and energy efficiency projects, and more. Chile and Mexico see some promising signs on wind and solar.

In his first speech as China's new Premier, Li Keqiang spoke of putting environmental protection ahead of economic growth, and even encouraged both media and the public to hold him accountable in tackling China's worsening environmental issues, which have become the number one cause of protests in China. Air pollution in China continues to be a top story and has given new momentum for environmental regulation in the country. And wind could continue to surge in China as more than 100 GW of wind is in the pipeline.

In US climate and energy news, energy efficiency has cut U.S. electricity demand in 2011 by enough to power 9.3 million homes for a year, U.S. solar and wind markets both show very significant growth in 2012, and another state could join the ranks of offshore wind developers. President Obama calls for doubling energy efficiency and renewable resources and a new study found that jobs from clean energy were an

economic bright spot in 2012. And Tom Friedman urges the President to reject Keystone XL and highlighting if he does approve it the environmental community should “go crazy” (and tar sands exploitation really does lead to more climate change).

The Ahmedabad government in India is taking steps to adapt to extreme heat.

Deforestation is the target of some of recent actions as Interpol cracks down on illegal logging and some major investors and companies commit to dump unsustainable palm oil.

Some recent news on dumping dirty diesels in India and Mexico. And phasing down HFCs overcomes a recent blip. In aviation news, groups call on Secretary Kerry to step up and help secure global action to reduce aviation’s carbon pollution and a new study has shown that existing measures won’t curb the growth of aviation’s carbon pollution enough to meet the industry’s own goals, nor the more aggressive ones that the science demands – highlighting the need for ICAO to secure a global market-based measure this year.

The impacts of climate change keep showing up as February marked the 336th consecutive month that global temperatures rose above the 20th century average. And more climate science news.

American Public Rallies for Climate Action - Obama & Kerry Speak

The largest rally in the U.S. dedicated to climate change generated huge enthusiasm for action with more than 35,000 people braving a very cold day. 62% of Americans favor setting stricter emission limits on power plants in order to address climate change, with 70% of young Americans support cleaning up power plants, according to a new poll from Pew Research. President Obama hints at stronger climate action to come and Secretary Kerry speaks forcefully about the need for action. And the Senate rejects a bid to block EPA from setting carbon pollution standards on power plants.

- More than 35,000 Rally to Protect Our Climate:
http://switchboard.nrdc.org/blogs/sclefkowitz/more_than_35000_canadians_and.html
- 'Forward On Climate' Rally Brings Climate Change Activists To National Mall In Washington, D.C. (Huffington Post):
http://www.huffingtonpost.com/2013/02/17/forward-on-climate-rally_n_2702575.html
- President Strengthens His Call for National Climate Action:
http://switchboard.nrdc.org/blogs/fbeinecke/president_strengthens_his_call.html
- The State of the Union's Carbon Pollution:
http://switchboard.nrdc.org/blogs/dlashof/the_state_of_the_unions_carbon.html
- Kerry comes out swinging on climate change (The Hill):
<http://thehill.com/blogs/e2-wire/e2-wire/284017-kerry-comes-out-swinging-on-climate-change#ixzz2LSyaXeFl>
- 60 Percent of Americans Support Presidential Action to Fight Ravages of Climate Change (NRDC Post-State of the Union Poll):
<http://www.nrdc.org/media/2013/130213a.asp>
- Climate Change: Public Favors Stricter Emission Standards (Pew Research Center for the People & the Press): <http://www.people-press.org/2013/02/20/section-1-opinions-about-major-issues/>
- You Don't Have to Take Our Word For it: Americans Want Action on Climate Change:
http://switchboard.nrdc.org/blogs/paltman/you_dont_have_to_take_our_word.html
- Senate Spurns Bid to Block Carbon Standards:
http://switchboard.nrdc.org/blogs/fbeinecke/senate_spurns_bid_to_block_car.html

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Global Renewable Energy Deployment

Looking at the math of climate change can be depressing sometimes, but there are some promising signs of hope as clean energy keeps surging globally. A recent assessment from a respected consulting firm projects that the clean energy market will double in the next 10 years. And installed solar PV reached a key milestone – 100 GW – while wind power grew by 20% and lots of geothermal is being developed. Deutsch Bank study found that grid parity for solar has already been reached in India and Italy, with more countries coming in 2014. Solar panel prices could continue to drop. Even Saudi Arabia could be getting into the renewable effort (and South Africa is poised to

adopt a carbon tax starting Jan 2015).

- Global Clean Energy Market Values Set To Nearly Double from 2012 to 2022 (CleanTechnica): <http://cleantechnica.com/2013/03/12/biofuel-wind-and-solar-global-market-values-set-to-double-by-2012/>
- More than 100 Gigawatts of Solar PV Now Installed Worldwide (Greentech Media): <http://www.greentechmedia.com/articles/read/global-solar-pv-capacity-passes-the-100-gigawatt-mark>
- Wind power capacity grew 20% globally in 2012, figures show (The Guardian): <http://www.guardian.co.uk/environment/2013/feb/11/wind-power-capacity-grew-2012>
- 450 Geothermal Projects In Development (CleanTechnica): <http://cleantechnica.com/2013/03/04/450-geothermal-projects-under-construction/>
- Solar Report Stunner: Unsubsidized ‘Grid Parity Has Been Reached In India’, Italy–With More Countries Coming in 2014 (Climate Progress): <http://thinkprogress.org/climate/2013/03/03/1664481/solar-report-stunner-unsubsidized-grid-parity-has-been-reached-in-india-italy-with-more-countries-coming-in-2014/>
- Top Chinese Manufacturers Will Produce Solar Panels for 42 Cents per Watt in 2015 (Greentech Media): <http://www.greentechmedia.com/articles/read/top-chinese-manufacturers-will-produce-solar-panels-for-42-cents-a-wat>
- Saudi Arabia Reveals Plans For 54 GW Of Renewable Energy, White Paper Provides Details (CleanTechnica): <http://cleantechnica.com/2013/02/25/saudi-arabia-reveals-plans-for-54-gw-of-renewable-energy/#mZguSbc3uiASmqwZ.99>
- C-tax 2013 – a bit later, but broader and for sure? (Energy Research Center, University of Capetown): <http://www.ercblogs.co.za/2013/c-tax-2013-a-bit-later-but-broader-and-for-sure/>

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India Solar & Energy Efficiency

My colleague comments on key actions that India is taking at a climate solutions symposium with a topnotch lineup of experts on climate actions in China, India, and elsewhere. Renewable energy investments in India could get a bump as the [government proposed to continue incentives for wind power](#). The European Investment Bank [loans India almost \\$200 million](#) for renewable energy and energy efficiency projects. Some Indian cities are poised to be “solar cities”.

- http://switchboard.nrdc.org/blogs/rkhosla/india_and_the_us_can_lead_the.html
- India's Budget Includes \$145 Million Incentive For Wind Energy, Low-cost Funding For Renewable Energy Projects (CleanTechnica): <http://cleantechnica.com/2013/03/01/indias-budget-includes-145-million-incentive-for-wind-energy-low-cost-funding-for-renewable-energy-projects/#hukjKzo88iLeQrpg.99>
- EUR 150 Million Loan to Mitigate Climate Change in India from the European Investment Bank: <http://www.eib.org/projects/press/2013/2013-028-eur-150-million-loan-to-mitigate-climate-change-in-india.htm>
- India Announces Its First Solar City (CleanTechnica): <http://cleantechnica.com/2013/03/06/india-announces-its-first-solar-city/>
- South Indian City Of Anantapur To Go Solar And Save \$1 Million Every Year (CleanTechnica): <http://cleantechnica.com/2013/02/25/south-indian-city-of-anantapur-to-go-solar-and-save-1-million-every-year/>

India Adaptation

NRDC and our Indian partners are working Ahmedabad government to protect its rotect the 7 million residents in this rapidly growing region from extreme heat:

- With Temperatures Rising, Major Indian City Moves Closer to Releasing Life-Saving Heat Action Plan: http://switchboard.nrdc.org/blogs/ajaiswal/with_temperatures_rising_major.html
- Fighting Climate Effects: The Media Boosts Heat Wave Science into Action in Ahmedabad: http://switchboard.nrdc.org/blogs/kknowlton/fighting_climate_effects_the_m_1.html

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China Climate, Clean energy, and Air Pollution policies

The new Chinese leadership is under pressure to clean-up the environment as environmental issues become the number one cause of protests. Air pollution in China has given new momentum for environmental regulation in China, as [NRDC recommendations to improve the Chinese Air Law](#) are a hot commodity again since the Chinese Ministry of Environmental Protection (MEP) has reopened the process to amend the law. And [MEP has announced some new stepped up efforts](#). And the Beijing's municipal environmental bureau released draft recommendations to [improve](#)

their own rules. China's new leadership is facing growing environmental pressures and an environmental champion could be China's new environment minister. And new analysis shows that wind could continue to surge in China as more than 100 GW of wind is in the pipeline, with developers taking advantage of wind resources closer to major energy demand markets.

● Will China's New Leaders Clean Up the Environment?

http://switchboard.nrdc.org/blogs/bfinamore/will_chinas_new_leaders_clean.html

● China's new leadership faces growing environmental pressures (The

Guardian): <http://www.guardian.co.uk/environment/2013/mar/06/china-new-leadership-environmental-pressures>

● China Vows to Curb Emissions as Pollution Fuels Social Unrest

(Bloomberg): <http://www.bloomberg.com/news/2013-03-15/china-vows-to-curb-emissions-as-pollution-fuels-social-unrest.html>

● Environmental Champion Pan Yue Could be China's New Minister of Environmental Protection:

http://switchboard.nrdc.org/blogs/bfinamore/environmental_champion_pan_yue.html

● Air Pollution Crisis Gives New Momentum to Environmental Regulation in

China: http://switchboard.nrdc.org/blogs/bfinamore/air_pollution_crisis_gives_new.html

● Improving Beijing's Air Quality: Recommendations for Strengthening Beijing's Draft Air Pollution Prevention and Control Regulations:

http://switchboard.nrdc.org/blogs/bfinamore/improving_beijings_air_quality.html

● Pollution Is Costing China's Economy More Than \$100 Billion A Year

(Business Insider): <http://www.businessinsider.com/cost-of-china-smog-2013-3>

● Report: More Than 100 Gigawatts in the China Wind Pipeline (Greentech

Media): <http://www.greentechmedia.com/articles/read/Report-More-than-100-Gigawatts-in-the-China-Wind-Pipeline>

● 70 Percent of China's New Wind Is in Low-Speed Regions (Greentech

Media): <http://www.greentechmedia.com/articles/read/70-Percent-of-Chinas-New-Wind-is-in-Low-Speed-Regions>

⇒ **NRDC's report on strengthening China's Air Law:** [Amending China's Air Pollution Prevention and Control Law](#).

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Latin American Renewable Energy Deployment

The Chilean government is looking to build the largest Concentrated Solar Power project in Latin America, Mexican wind deployment keeps growing, and solar surge expected in Mexico.

- The Chilean Government has issued an international tender to support the construction of a 50 MW Concentrated Solar Power (AméricaEconomía 2/28/2013): <http://www.americaeconomia.com/negocios-industrias/chile-lanza-concurso-para-construccion-de-planta-de-concentracion-solar-de-poten>

- Mexico Expects Solar to Surge as Country Seeks to Meet 2026 Goal (Bloomberg): <http://www.bloomberg.com/news/2013-02-28/mexico-expects-solar-to-surge-as-country-seeks-to-meet-2026-goal.html>

- Mexico wind capacity more than doubles (Windpower Monthly): <http://www.windpowermonthly.com/article/1172001/Mexico---Top-two-slot-confirmed-capacity-doubles>

- The first stone was laid in the Pampa Elvira Solar project in Antofagasta, Chile (La Segunda): <http://www.lasegunda.com/Noticias/Economia/2013/03/830556/Mina-Gaby-construira-la-planta-solar-mas-grande-del-mundo>

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U.S. Climate and Clean Energy Actions

Energy efficiency has cut U.S. electricity demand in 2011 by enough to power 9.3 million homes for a year, U.S. solar market shows very significant growth in 2012, and another state could join the ranks of offshore wind developers. President Obama calls for doubling energy efficiency and renewable resources and a [new study found that jobs from clean energy were an economic bright spot in 2012](#). And Tom Friedman urges the President to reject Keystone XL and highlighting if he does approve it the environmental community should “go crazy”.

- Energy Efficiency Cut 107TWh Of US Electricity Demand In 2011 (CleanTechnica): <http://cleantechnica.com/2013/03/06/energy-efficiency-cut-107twh-of-us-electricity-demand-in-2011/>

- US Solar Market Grows 76% in 2012 (Greentech Media): <http://www.greentechmedia.com/articles/read/u.s.-solar-market-grows-76-in-2012>

- American wind power now generates over 10 percent of electricity in nine states (AWEA): <http://www.awea.org/newsroom/pressreleases/wind-generation->

2012.cfm

- Maryland Passes Landmark Offshore Wind Legislation (CleanTechnica):
<http://cleantechnica.com/2013/03/08/maryland-passes-landmark-offshore-wind-legislation/>
- President Calls for Doubling Energy Efficiency & Renewable Resources:
http://switchboard.nrdc.org/blogs/dbryk/president_calls_for_doubling_e.html
- Jobs from Clean Energy an Economic Bright Spot in 2012:
http://switchboard.nrdc.org/blogs/plehner/jobs_from_clean_energy_an_econ.html
- No to Keystone. Yes to Crazy (Tom Friedman in the NY Times):
http://www.nytimes.com/2013/03/10/opinion/sunday/friedman-no-to-keystone-yes-to-crazy.html?_r=3&
- Just the facts: Climate Impacts from the Keystone XL Tar Sands Pipeline:
http://switchboard.nrdc.org/blogs/ddroitsch/just_the_facts_climate_impacts_1.html
- President Obama's Climate Promise and What it Means for Canada:
http://switchboard.nrdc.org/blogs/ddroitsch/in_the_first_state_of.html
- Fuel Economy Continues to Rise: EPA Report:
http://switchboard.nrdc.org/blogs/ltonachel/fuel_economy_continues_to_rise.html
- Policy guide for deploying more Combined Heat and Power - a highly efficient energy technology:
http://switchboard.nrdc.org/blogs/vgowrishankar/a_policy_guide_for_deploying_m.html

⇒ **Environmental Entrepreneurs (E2) report:** *2012 Clean Energy Jobs Year-in-Review and Fourth Quarter Report*

Deforestation

Interpol cracks down on illegal logging in Latin America. Some major investors and companies commit to dump unsustainable palm oil as Norway's wealth fund dumps 23 palm oil companies, American doughnuts may be moving towards deforestation free, and Nestle reports on its progress to cleaning up its palm supply chain. Leading one commentator to say that strong "no deforestation" commitments save forests and fee people.

- INTERPOL cracks down on illegal logging in Latin America:
<http://www.interpol.int/News-and-media/News-media-releases/2013/PR017>
- Norway's wealth fund dumps 23 palm oil companies under new deforestation policy (Mongabay.com): <http://news.mongabay.com/2013/0311-norway-divestment.html>
- Dunkin' Donuts Gets Set To Run On Clean Palm Oil (Forbes):
<http://www.forbes.com/sites/nadiaarumugam/2013/03/08/dunkin-donuts-gets-set-to-run-on-clean-palm-oil/?ss=culture-connoisseur>
- Strong 'no deforestation' commitments save forests and feed people (Mongabay.com): <http://news.mongabay.com/2013/0312-swf2013-poynton-no-deforestation.html>
- Nestle's Environmental Targets For 2020 Include Sustainable Palm-Oil And Lowering Emissions (Reuters): <http://www.reuters.com/article/2013/03/13/nestle-idUSL6N0C563120130313>

Addressing Black Carbon: Dumping Dirty Diesels

Indian citizens could benefit from efforts to dump dirty diesel and while Mexico City is making progress on dumping dirty diesel the whole country now needs to follow suit. And cleaning up Hong Kong's air pollution.

- The Air That Kills in India (NY Times):
<http://green.blogs.nytimes.com/2013/02/14/the-air-that-kills-in-india/?hp>
- Mexico City is making progress on cleaning up dirty transportation - now the whole country needs to follow suit:
http://switchboard.nrdc.org/blogs/amaxwell/mexico_city_is_making_progress.html
- Air Pollution in Hong Kong: Restoring the Fragrant Harbour:
http://switchboard.nrdc.org/blogs/bfinamore/air_pollution_in_hong_kong_res.html

Phasing down HFCs

The main auto engineering panel backs climate friendly coolants that are replacing HFCs in vehicles around the world. To end a dispute with the EU over a mandate to phase out high-GWP coolants, Daimler develops a new refrigerant. And one commentator talks about domestic actions on short-lived climate forcers that the US

should implement.

- Auto Engineering Panel Backs Climate-Friendly Coolant, Faults Daimler's "Unrealistic" and "Highly Improbable" Tests:

http://switchboard.nrdc.org/blogs/ddoniger/auto_engineering_panel_backs_c.html

- Daimler develops new refrigerant to end dispute over EU mandate

(Reuters): <http://uk.reuters.com/article/2013/03/06/daimler-honeywell-idUKL6N0BYF2620130306>

- On Climate Change: U.S. Should Act to Reduce Short-Lived Pollutants (Center for Climate and Energy Solutions):

<http://theenergycollective.com/seidel/197571/us-should-act-now-reduce-short-lived-pollutants-damaging-climate>

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Aviation

It is time for Secretary Kerry to step up and help secure global action to reduce aviation's carbon pollution – groups are pushing for Kerry to act now. A new study has shown that existing measures won't curb the growth of aviation's carbon pollution enough to meet the industry's own goals, nor the more aggressive ones that the science demands. The study shows the need for ICAO to secure a global market-based measure this year. NRDC scored airlines on whether they are using sustainable biofuels and a super efficient jet engine was proven in the lab.

- Secretary Kerry: Secure a Global Agreement to Reduce Aviation's Carbon Pollution:

http://switchboard.nrdc.org/blogs/jschmidt/secretary_kerry_secure_a_globa.html

- Aviation Global Warming Pollution Will Rise Without New Action: Study Details: http://switchboard.nrdc.org/blogs/jschmidt/aviation_global_warming_pollut.html

- Aviation Industry Takes Positive Step in Ensuring Biofuels Deliver on Promise of Sustainability:

http://switchboard.nrdc.org/blogs/dhammel/aviation_industry_takes_positi.html

- Super Efficient Jet Engine from GE (CleanTechnica):

<http://cleantechnica.com/2013/03/12/super-efficient-jet-engine/>

⇒ **NRDC report:** *Aviation Biofuel Sustainability Survey*

⇒ **Manchester University study:** *Bridging the aviation CO2 emissions gap: why emissions trading is needed*

Climate Impacts: Extreme weather happening now

The impacts of climate change keep showing up as the Arctic sea ice volume has collapsed and the US winter was warmer and wetter than average. According to NOAA, February marked the 336th consecutive month that global temperatures rose above the 20th century average. The impacts of climate change has led the head of the US Pacific military forces to say that climate change is the biggest threat to the region's security – greater than North Korea. Unfortunately the concentration of CO2 keeps rising, leading one prominent scientist to point out that 2014 could see the depressing headline that the CO2 concentrations reach 400 ppm in 2014.

- Arctic Death Spiral Bombshell: CryoSat-2 Confirms Sea Ice Volume Has Collapsed (Climate Progress):
<http://thinkprogress.org/climate/2013/02/14/1594211/death-spiral-bombshell-cryosat-2-confirms-arctic-sea-ice-volume-has-collapsed/>
- USA's winter was warmer and wetter than average (USA Today):
<http://www.usatoday.com/story/weather/2013/03/11/winter-climate-report/1979553/>
- February Keeps the Planet's Warm Streak Alive: NOAA (Climate Central):
<http://www.climatecentral.org/news/february-keeps-the-planets-warm-streak-going-noaa-15741>
- Head Of U.S. Pacific Forces: Climate Change Is Biggest Threat To Region's Security (Think Progress):
<http://thinkprogress.org/security/2013/03/11/1698091/pacom-commander-climate-change/>
- The Bottom Line on Climate Is in the Air:
http://switchboard.nrdc.org/blogs/dlashof/the_bottom_line_on_climate_is.html
- The Inevitable 2014 Headline: 'Global CO2 Level Reaches 400 PPM For First Time In Human Existence.' (Science Blogs):
<http://scienceblogs.com/significantfigures/index.php/2013/03/07/an-inevitable-headline-in-2014-planets-co2-level-reaches-400-ppm-for-first-time-in-human-existence/>

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To: Huffman, Linda[Huffman.Linda@epa.gov]
Cc: Bromm, Susan[Bromm.Susan@epa.gov]; Rader, Cliff[Rader.Cliff@epa.gov]; Ali, Mustafa[Ali.Mustafa@epa.gov]; Droitsch, Danielle[ddroitsch@nrdc.org]
From: Droitsch, Danielle
Sent: Wed 4/3/2013 7:38:16 PM
Subject: Meeting request for Dr. Mark Jaccard

Hello,

I am following up on a meeting request for Cynthia Giles on behalf of NRDC and the Sierra Club. If for some reason Ms. Giles is not available, we would certainly appreciate a meeting with her staff.

We are hosting Dr. Mark Jaccard, a leading Canadian climate economist who is in town only on April 10 and 11 next week. Dr. Jaccard has been invited to testify before a House committee on a key issue regarding whether the Keystone XL pipeline will increase global greenhouse gas emissions. We believe his expertise on whether tar sands production would be affected by Keystone XL would be invaluable to the EPA including analysis of the prospects of pipelines and other transportation options such as rail to move ahead. Would Ms. Giles be available on April 11th for a meeting?

Dr. Jaccard's expertise is impressive and we know that his background as an economist would be extremely useful at this stage in the process. We look forward to hearing back from you.

Best,

Danielle Droitsch

From: Lena Moffitt <lana.moffitt@sierraclub.org>
Date: April 2, 2013, 12:48:44 PM EDT
To: huffman.linda@epa.gov
Cc: Susan Bromm <Bromm.Susan@epamail.epa.gov>, Cliff Rader <Rader.Cliff@epamail.epa.gov>, ali.mustafa@epa.gov
Subject: Meeting request for Canadian economist Marc Jaccard to discuss tar sands developments

Hi Ms. Huffman,

I am writing to request a meeting with Ms. Giles for Dr. Marc Jaccard who will be in town to testify before the House Energy and Commerce Committee. He is available to meet April 10th and 11th, and would love to meet with Ms. Giles or staff from her Department regarding the economics of Canadian tar sands developments, particularly relating to Keystone XL, and the climate change impacts of these developments. His bio can be found [here](#) and a short piece he's written about his background can be found [here](#). We would love for Dr. Jaccard to meet with Ms.

Giles, or staff of her Office, as well as staff of the Office of Environmental Justice, as we believe his testimony and expertise could be very informative for EPA's comments to the State Department's SEIS on Keystone XL.

Let me know if I can do anything else to help, thank you so much!

Cheers,
Lena

Danielle Droitsch | Senior Attorney

Canada Project Director, International Program

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Blog: <http://switchboard.nrdc.org/blogs/ddroitsch/>

To: Rader, Cliff[Rader.Cliff@epa.gov]
Cc: Bromm, Susan[Bromm.Susan@epa.gov]; Huffman, Linda[Huffman.Linda@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Levy, Aaron[Levy.Aaron@epa.gov]; Barron, Alex[Barron.Alex@epa.gov]; Kopits, Elizabeth[Kopits.Elizabeth@epa.gov]; McGartland, Al[McGartland.Al@epa.gov]; Wright, Justin[wright.justin@epa.gov]
From: Droitsch, Danielle
Sent: Fri 4/5/2013 7:21:03 PM
Subject: RE: Meeting request for Dr. Mark Jaccard

Thank you Cliff – thank you for getting back with us. 10 am on April 11 works very well.

If you could provide me with the detail on where we will meet and what information you will need from us, that would be much appreciated.

Best,

Danielle

From: Rader, Cliff [mailto:Rader.Cliff@epa.gov]
Sent: Friday, April 05, 2013 3:15 PM
To: Droitsch, Danielle
Cc: Bromm, Susan; Huffman, Linda; Hengst, Benjamin; Levy, Aaron; Barron, Alex; Kopits, Elizabeth; McGartland, Al; Wright, Justin
Subject: RE: Meeting request for Dr. Mark Jaccard

Danielle –

Thank you for the invite, and I apologize for the delay in responding. Cynthia Giles is not available, however, I would be glad to meet with you and Dr. Jaccard.

By this email, I am also inviting staff from our Air Office and Policy Office.

Would 10:00 am on April 11 work for you and Dr. Jaccard?

Thanks,

- Cliff

From: Droitsch, Danielle [<mailto:ddroitsch@nrdc.org>]
Sent: Wednesday, April 03, 2013 3:38 PM
To: Huffman, Linda
Cc: Bromm, Susan; Rader, Cliff; Ali, Mustafa; Droitsch, Danielle
Subject: Meeting request for Dr. Mark Jaccard
Importance: High

Hello,

I am following up on a meeting request for Cynthia Giles on behalf of NRDC and the Sierra Club. If for some reason Ms. Giles is not available, we would certainly appreciate a meeting with her staff.

We are hosting Dr. Mark Jaccard, a leading Canadian climate economist who is in town only on April 10 and 11 next week. Dr. Jaccard has been invited to testify before a House committee on a key issue regarding whether the Keystone XL pipeline will increase global greenhouse gas emissions. We believe his expertise on whether tar sands production would be affected by Keystone XL would be invaluable to the EPA including analysis of the prospects of pipelines and other transportation options such as rail to move ahead. Would Ms. Giles be available on April 11th for a meeting?

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Let me know if I can do anything else to help, thank you so much!

Cheers,
Lena

Danielle Droitsch | Senior Attorney

Canada Project Director, International Program

Natural Resources Defense Council | www.NRDC.org

1152 15th St. NW, Suite 300 | Washington, DC 20005

phone: 202.513.6243 | cell: 202.413.0193 | email: ddroitsch@nrdc.org

Blog: <http://switchboard.nrdc.org/blogs/ddroitsch/>

To: Droitsch, Danielle[ddroitsch@nrdc.org]
Cc: Bromm, Susan[Bromm.Susan@epa.gov]; Huffman, Linda[Huffman.Linda@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Levy, Aaron[Levy.Aaron@epa.gov]; Barron, Alex[Barron.Alex@epa.gov]; Kopits, Elizabeth[Kopits.Elizabeth@epa.gov]; McGartland, Al[McGartland.Al@epa.gov]; Wright, Justin[wright.justin@epa.gov]
From: Rader, Cliff
Sent: Fri 4/5/2013 7:15:09 PM
Subject: RE: Meeting request for Dr. Mark Jaccard

Danielle –

Thank you for the invite, and I apologize for the delay in responding. Cynthia Giles is not available, however, I would be glad to meet with you and Dr. Jaccard.

By this email, I am also inviting staff from our Air Office and Policy Office.

Would 10:00 am on April 11 work for you and Dr. Jaccard?

Thanks,

- Cliff

From: Droitsch, Danielle [mailto:ddroitsch@nrdc.org]
Sent: Wednesday, April 03, 2013 3:38 PM
To: Huffman, Linda
Cc: Bromm, Susan; Rader, Cliff; Ali, Mustafa; Droitsch, Danielle
Subject: Meeting request for Dr. Mark Jaccard
Importance: High

Hello,

I am following up on a meeting request for Cynthia Giles on behalf of NRDC and the Sierra Club. If for some reason Ms. Giles is not available, we would certainly appreciate a meeting with her staff.

We are hosting Dr. Mark Jaccard, a leading Canadian climate economist who is in town only on April 10 and 11 next week. Dr. Jaccard has been invited to testify before a House committee on a key issue regarding whether the Keystone XL pipeline will increase global greenhouse gas emissions. We believe his expertise on whether tar sands production would be affected by Keystone XL would be invaluable to the EPA including analysis of the prospects of pipelines and other transportation options such as rail to move ahead. Would Ms. Giles be available on April 11th for a meeting?

Dr. Jaccard's expertise is impressive and we know that his background as an economist would be extremely useful at this stage in the process. We look forward to hearing back from you.

Best,

Danielle Droitsch

From: Lena Moffitt <lena.moffitt@sierraclub.org>

Date: April 2, 2013, 12:48:44 PM EDT

To: huffman.linda@epa.gov

Cc: Susan Bromm <Bromm.Susan@epamail.epa.gov>, Cliff Rader <Rader.Cliff@epamail.epa.gov>, ali.mustafa@epa.gov

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phone: 202.513.6243 | cell: 202.413.0193 | email: ddroitsch@nrdc.org

Blog: <http://switchboard.nrdc.org/blogs/ddroitsch/>

To: Droitsch, Danielle[ddroitsch@nrdc.org]; Lena Moffitt[lena.moffitt@sierraclub.org]
From: Rader, Cliff
Sent: Mon 4/8/2013 8:26:44 PM
Subject: RE: Meeting request for Dr. Mark Jaccard

Danielle and Lena –

We are set for Thursday, 10 – 11, in Ariel Rios South (room 7220)

We will meet you at the Guard's desk a few minutes before to help you through..

See you then.

- Cliff

From: Droitsch, Danielle [mailto:ddroitsch@nrdc.org]
Sent: Friday, April 05, 2013 3:21 PM
To: Rader, Cliff
Cc: Bromm, Susan; Huffman, Linda; Hengst, Benjamin; Levy, Aaron; Barron, Alex; Kopits, Elizabeth; McGartland, Al; Wright, Justin
Subject: RE: Meeting request for Dr. Mark Jaccard

Thank you Cliff – thank you for getting back with us. 10 am on April 11 works very well.

If you could provide me with the detail on where we will meet and what information you will need from us, that would be much appreciated.

Best,

Danielle

From: Rader, Cliff [<mailto:Rader.Cliff@epa.gov>]
Sent: Friday, April 05, 2013 3:15 PM
To: Droitsch, Danielle
Cc: Bromm, Susan; Huffman, Linda; Hengst, Benjamin; Levy, Aaron; Barron, Alex; Kopits, Elizabeth; McGartland, Al; Wright, Justin
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Importance: High

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To: Rader, Cliff[Rader.Cliff@epa.gov]
Cc: Huffman, Linda[Huffman.Linda@epa.gov]; Bromm, Susan[Bromm.Susan@epa.gov]; Danielle Droitsch[ddroitsch@nrdc.org]
From: Lena Moffitt
Sent: Mon 4/8/2013 3:40:01 PM
Subject: Re: Meeting request for Canadian economist Marc Jaccard to discuss tar sands developments

Hi all, thank you so much for meeting with us and Dr. Jaccard this Thursday. Which building should we come to? Ariel Rios North? Thanks again,
 Lena

On Sat, Apr 6, 2013 at 2:47 PM, Rader, Cliff <Rader.Cliff@epa.gov> wrote:

Lena -
 We are set for 10:00 on Thursday; Danielle and I exchanged emails on Friday.

We will send room info, etc. on Monday...

- Cliff

Cliff Rader
 Director, NEPA Compliance Division
[202-564-7159](tel:202-564-7159)

From: Lena Moffitt [lena.moffitt@sierraclub.org]
Sent: Friday, April 05, 2013 3:26 PM
To: Huffman, Linda
Cc: Bromm, Susan; Rader, Cliff; Ali, Mustafa
Subject: Re: Meeting request for Canadian economist Marc Jaccard to discuss tar sands developments

Hi all, I just wanted to check on this request for Dr. Jaccard next week? I believe my colleague from NRDC may have reached out to you as well, to support the request, but wanted to be sure you knew this is the same request. Please do let me know if you're able to meet. Thank you so much for all you do!

On Tue, Apr 2, 2013 at 12:48 PM, Lena Moffitt <lena.moffitt@sierraclub.org> wrote:

Hi Ms. Huffman,
 I am writing to request a meeting with Ms. Giles for Dr. Marc Jaccard who will be in town to testify before the House Energy and Commerce Committee. He is available to meet April 10th and 11th, and would love to meet with Ms. Giles or staff from her Department regarding the economics of Canadian tar sands developments, particularly relating to Keystone XL, and the climate change impacts of these developments. His bio can be found [here](#) and a short piece he's written about his background can be found [here](#). We would love for Dr. Jaccard to meet with Ms. Giles, or staff of her Office, as

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Cheers,

Lena

--

Lena Moffitt

Sierra Club

202-675-2396 (w)

505-480-1551 (c)

--

Lena Moffitt

Sierra Club

202-675-2396 (w)

505-480-1551 (c)

--

Lena Moffitt

Sierra Club

202-675-2396 (w)

505-480-1551 (c)

To: Lena Moffitt[lena.moffitt@sierraclub.org]; Rader, Cliff[Rader.Cliff@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
Cc: Bromm, Susan[Bromm.Susan@epa.gov]
From: Swift, Anthony
Sent: Mon 4/15/2013 4:26:44 PM
Subject: Alberta Labor and Capital Costs
[ihs-cera-upgrading-refining-mar-2013.pdf](#)

Hi Cliff and Ben,

I also wanted to address the point of rising production costs in Alberta. State Department used NEB's 2011 numbers for production costs and forecast that they would stay constant through 2040. As you can see, ERCB 2012 numbers already show a substantial increase in production costs:

<i>Increasing Costs of Tar Sands Production</i>			
	NEB 2011 (Baseline for <u>State's 2013 draft SEIS</u>)	<u>Alberta 2011 (ERCB)</u>	<u>Alberta 2012 (ERCB)</u>
New In Situ	\$51 - \$61	\$47 - \$57	\$50 - \$78
New Mining (no upgrading)	\$66 - \$76	\$63 - \$81	\$70 - \$91
New Mining w/ upgrading	\$86 - \$96	\$88 - \$102	NA

In our meeting, we discussed reasons why Alberta tends to have higher labor and material costs. The attached IHS CERA report has some interesting points on that issue - they're talking about it in context of upgraders/refineries, but the issues are the same for tar sands projects as well. Underestimating tar sands production costs is another way of underestimating the impact that higher rail transportation costs will have on the profitability of new tar sands projects and overall production rates. Here are two excerpts:

"Cost is a barrier for new upgrading or refining projects in Alberta; when projects were first

proposed (in the earlier 2000s), investors expected lower price tags. From 2000 to 2008

(as

measured by the IHS CERA Capital Costs Index) costs for building upgraders or refineries

in Alberta increased by 70%.* The rate of change was borne out on actual projects built this

decade, which had final price tags that were 50% to 100% higher than original estimates.

Although costs softened during the recession, they have since recovered and are now higher

than pre-recession levels. The situation is not unique to Alberta. Project costs around the

globe registered similar escalation owing to increased demand for commodities, equipment,

and specialized personnel. However, with absolute costs in Alberta already higher than most

other regions, escalation had a more severe impact on project economics in Alberta.*”

And:

“Construction techniques. Owing to differing construction methods, inland locations are more expensive to build. With ocean access, larger components or modules of the facility can be built off site. Once complete, the modules can be transported to site and assembled like building blocks. This technique materially reduces the labor requirements and—consequently—the cost. Access to the ocean is critical, because modules can be the size of a football field and need to be transported by ship. Although inland locations can use this method, since the modules must be transported by truck, this materially reduces the module size and corresponding cost savings.

Labor costs. Construction labor is a large factor in why costs vary among regions.

In North America direct labor typically makes up 30% of a project's total cost, and labor costs in Alberta are higher than those of other regions. One cause is the limited regional pool of construction workers (demand from oil sands projects often exceeds local supply, requiring workers to be recruited from across Canada and the globe).

Another is Alberta's landlocked location, keeping on-site labor requirements relatively high (see construction techniques). Climate is also a concern; cold weather decreases worker productivity."

Best,

Anthony Swift | Attorney, International Program

Natural Resources Defense Council | www.NRDC.org

1152 15th St. NW, Suite 300 | Washington, DC 20005

phone: 202.513.6276 | cell: 215.478.4967 |

Blog: <http://switchboard.nrdc.org/blogs/aswift/>

Extracting Economic Value from the Canadian Oil Sands

Upgrading and refining in Alberta (or
not)?

Special Report™



CERA

About this report

Purpose. For the first years of Canadian oil sands development, all projects upgraded their heavy crude to light products before pipelining them to market. In most new oil sands projects are opting to send the heavy crude directly to market—without upgrading or refining it locally. What are the economic drivers shaping the decision to process bitumen or not? What option uses capital most efficiently, and how does the decision to process bitumen locally (or not) affect Alberta and Canada more broadly—for instance impacting jobs, government revenues, and greenhouse gas (GHG) emissions.

Context. This is part of a series of reports from the IHS CERA Canadian Oil Sands Energy Dialogue. The Dialogue convenes stakeholders in the oil sands to participate in an objective analysis of the benefits, costs, and impacts of various choices associated with Canadian oil sands development. Stakeholders include representatives from governments, regulators, oil companies, shipping companies, and nongovernmental organizations.

This report and past Oil Sands Dialogue reports can be downloaded at www.ihs.com/oilsandsdialogue.

Methodology. This report includes multistakeholder input from a focus group meeting held in Calgary, Alberta, on 7 June 2012 and participant feedback on a draft version of the report. IHS CERA also conducted its own extensive research and analysis, both independently and in consultation with stakeholders. IHS CERA has full editorial control over this report and is solely responsible for the report's contents (see end of report for a list of participants and the IHS CERA team).

Structure. This report has four sections.

- part 1: introduction
- part 2: the economics for upgrading and refining oil sands
- part 3: implications—production, jobs, government revenues, and GHG emissions
- part 4: conclusion

We welcome your feedback regarding this IHS CERA report or any aspect of IHS CERA's research, services, studies, and events. Please contact us at customer-care@ihs.com, +1 800 IHS CARE (from North American locations), or +44 (0) 1344 328 300 (from outside North America).

For clients with access to IHS CERA.com, the following features related to this report may be available online:
downloadable data (Excel file format); downloadable, full-color graphics; author biographies;
and the Adobe PDF version of the complete report.

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EXTRACTING ECONOMIC VALUE FROM THE CANADIAN OIL SANDS: UPGRADING AND REFINING IN ALBERTA (OR NOT)?

KEY IMPLICATIONS

in the earlier years of Canadian oil sands development, all projects upgraded their heavy crude to light products before shipping them to market. ~~today~~, most new oil sands projects are opting to send the heavy crude directly to market—without upgrading or refining in Alberta. This has spurred a debate about the role of value-added upgrading and refining in the Alberta oil industry. Specifically, the debate is about what role, if any, policy should play in shaping investment decisions about upgrading and refining.

- Alberta greenfield upgrading economics are challenged by an outlook for a narrow price difference between light and heavy crudes and high construction costs. Both factors discourage investment in upgrading equipment.
- Owing to challenging economics, we expect a future with less greenfield upgrading investment in Alberta. Less upgrader construction has benefits, since it reduces the strain on an already tight labor market. In a case where the region's limited pool of construction workers is deployed on bitumen-producing projects instead of upgraders or refineries, this drives production higher, resulting in more jobs and economic benefits to Alberta and Canada.
- Instead of building new upgraders or refineries, modifying existing refining capacity to process oil sands is the most economic way to add processing capacity. When comparing a greenfield project to modifying an existing refinery, modification is more economic. However, refinery conversion projects still face challenging market conditions in North America. With ample supplies of light crude in some regions, refiners have little motivation to undertake costly investments aimed at converting refineries to consume heavy crude.
- For a greenfield refinery project focused on oil sands processing, the strongest investment return is in Asia, where oil demand is growing. Although the potential is not as strong as in Asia, under the right conditions the economics of new refinery projects in Alberta and British Columbia could work. Asia's advantage is primarily the result of lower project costs (building a comparable project in China is at least 30% cheaper than in North America). For Alberta and British Columbia—assuming that a new refinery project consumes bitumen, manages to keep capital costs to a minimum, maximizes diesel production, and does not oversupply its market—the economics could work.

—March 2013



ExTrACTing ECONOmIC VAiUE f rOm ThE CAnAdiAn OiL SAndS: UPg rAding And rEfining in AlbErTA (Or nOT)?

PArT 1: inTrOdUCTiOn

To upgrade or not? This is a perennial question facing producers of Canadian oil sands. Bitumen—the raw material produced from oil sands—is an extra-heavy crude oil that needs significant processing to turn into valuable refined products such as diesel and gasoline. Oil sands producers face two options when it comes to the upgrading question. One option is not to upgrade and instead to blend the bitumen with condensate so that it can be shipped via pipeline to refineries with heavy conversion capacity. These are refineries capable of processing extra-heavy crude oil—such as bitumen blended with condensate—into light refined products. The second option is to upgrade the bitumen into a synthetic light crude oil (SCO). SCO can be processed by refineries that lack conversion capacity, which makes it marketable to a broader refining market compared with bitumen blend.

Prior to the onset of the global recession in 2008, the outlook for value-added upgrading and refining in the Canadian oil sands was bullish. Five upgraders were under construction, while six other upgrading projects plus two refining projects were in the earlier stages of development.* A key motivation for upgrading bitumen at that time was that the resulting SCO fetched a much higher price than bitumen blend. Altogether, the projects proposed before the recession represented well over \$100 billion in direct capital investment and about 3 million barrels per day (mbd) of upgrading and refining capacity.

Five years later, this outlook has been turned on its head. Only three of the five upgraders under construction in 2008 were completed, and the remaining projects were canceled or put on hold, leaving behind a landscape of partially erected towers. Today, while some projects are advancing, many were canceled.** Most future oil sands supply will be heavy crude that will be sent directly to market—without upgrading or refining locally. What happened to value-added upgrading and refining in Alberta, and what are the implications of oil sands processing for Alberta and Canada?

This report has four parts:

- Part 1: Introduction
- Part 2: The economics for upgrading and refining oil sands

*Refining and upgrading projects and status in 2008: CNRL Horizon phase 1 (construction) plus future phases (approved and announced); OPTI/Nexen Long Lake Phase 1 (construction) plus future phases (approved and application); Suncor Voyageur Phase 1 (construction) plus future phase (approved); Syncrude Mildred Lake debottleneck and expansion (announced); Athabasca Oil Sands Project (AOSP) Scotford 1 Expansion (construction); BA Energy/Value Creation phase 1 (construction) plus future phases (approved); North West Upgrader/refinery (approved); Petro-Canada Fort Hills (approved); Shell Scotford 2 (application); Statoil upgrader (application); Total E&P Northern Lights (application); Peace River Oil BlueSky Refining (announced); Husky Energy- Lloydminster upgrader expansion (announced).

**Projects under construction in 2008 that were completed include CNRL Horizon, OPTI/Nexen, and Albion Oil Sands Scotford 1 Expansion. Projects under construction in 2008 that were canceled or put on hold include Suncor's Voyageur (on hold with a decision expected soon) and BA Energy/Value Creation (canceled). Projects currently advancing include North West Redwater Partnership refinery and Kitimat Clean Refinery.

- Part 3: Implications—Production, jobs, government revenues, and greenhouse gas (GHG) emissions
- Part 4: Conclusion

Throughout this report, we refer to various crude oil terms. See the box “Primer: Crude oil terms” for definitions.

Primer: Crude oil terms

Canadian Oil Sands

In its natural state, raw bitumen is solid at room temperature and cannot be transported in pipelines. For transport, bitumen must be either diluted with light oil into a bitumen blend or converted into a light crude oil—called synthetic crude oil (SCO).

- Synthetic crude oil. SCO is produced from bitumen via refinery conversion units called upgraders that turn heavy hydrocarbons into lighter, more valuable components from which gasoline and diesel are manufactured. SCO resembles light, sweet crude oil, with API gravity typically greater than 30°.
- Bitumen blend and dilbit. To meet pipeline requirements, bitumen is diluted with lighter hydrocarbons. A refinery may need modifications to process large amounts of bitumen blends because they result in more heavy oil products than most crude oils. Bitumen blends typically have a gravity of 22°API (similar to other heavy crude oils such as Mexican Maya). The most common bitumen blend involves diluting bitumen with a natural gas condensate to make a substance called dilbit. A typical blend is about 72% bitumen and 28% condensate.

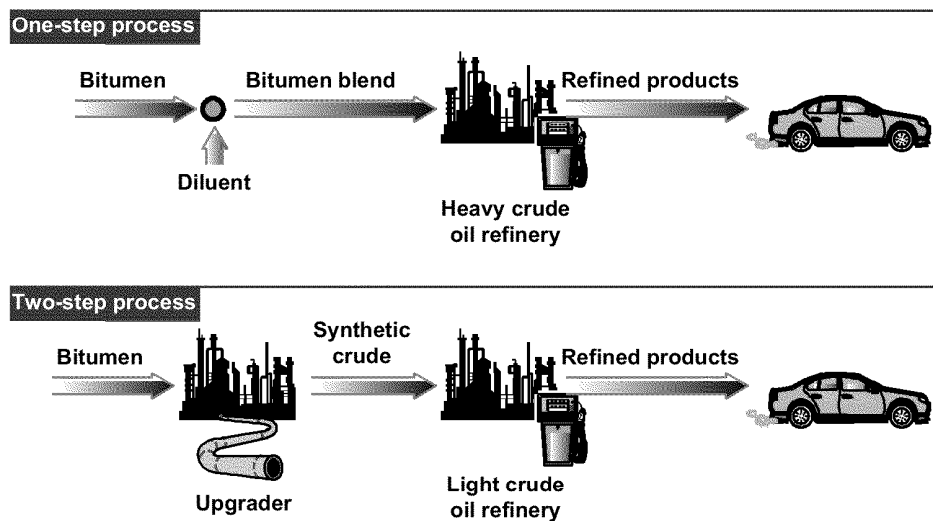
PArT 2: ThE ECOnOmICS fOr UPg rAding And rEfining Oil SAndS

In 2012 Canadian oil sands production was about 1.8 mbd. By 2020 output is expected to reach 3.2 mbd. Today most of the growth is anticipated to be heavy crude supply—shipped by pipeline to be refined outside of Alberta. This section provides upgrading and refining basics and an explanation of why the prospects for value-added upgrading and refining bitumen have dimmed since 2008. Finally, it compares the economics for processing bitumen in Alberta with those of other locations.

ECOnOmIC bASiCS: UPg rAding And rEfining Oil SAndS biTUMEn

When first extracted, the bitumen from the oil sands is the consistency of peanut butter. Like other crudes, bitumen must be converted to gasoline or diesel or some other product before it can be consumed. The transformation can take place in a two-step process (upgrading to a light, sweet crude called SCO in one location and refining into transportation fuels in another) or in a single step (refining the bitumen directly into transportation fuels). Prior to the global recession, the two-step process was the dominant strategy deployed in the Canadian oil sands (see Figure 1). Although not the only factor, technical limitations were one reason for the historical dominance of the two-step process.*

Figure 1
Bitumen upgrading and refining: One-step and two-step processes



Source: IHS CERA.
21211-1

*In the early years of oil sands development (when commercial production was limited to surface mining operations), extraction methods required bitumen to be upgraded. However, today, new mining extraction techniques have been developed that enable producers to transport blended bitumen, without upgrading. Production by in-situ extraction, a growing source of oil sands supply, also does not require upgrading prior to shipment to market.

Whether a one- or two-step process is deployed, facilities for converting bitumen into lighter products are capital intensive. New greenfield refineries or upgraders cost many billions of dollars. Once built, the facilities make money on the price difference between the heavy crudes they consume and the light products they produce. The wider the price gap, the more money the facilities make and the faster they can pay back the large upfront capital investment. Conversely, if the spread between heavy crudes and light products becomes too small, profit dwindles, and the payback of the initial capital investment is put at risk.

ChAnGing TimES fOr UPgrAding And rEfining in AlBErTA

Since the 2009 recession, challenging economics have changed the outlook for upgrading and refining in Alberta. The main causes are project costs and the outlook for the price difference between heavy and light crudes.

rising capital costs

Cost is a barrier for new upgrading or refining projects in Alberta; when projects were first proposed (in the earlier 2000s), investors expected lower price tags. From 2000 to 2008 (as measured by the IHS CERA Capital Costs Index) costs for building upgraders or refineries in Alberta increased by 70%.^{*} The rate of change was borne out on actual projects built this decade, which had final price tags that were 50% to 100% higher than original estimates. Although costs softened during the recession, they have since recovered and are now higher than pre-recession levels. The situation is not unique to Alberta. Project costs around the globe registered similar escalation owing to increased demand for commodities, equipment, and specialized personnel. However, with absolute costs in Alberta already higher than most other regions, escalation had a more severe impact on project economics in Alberta.^{**}

narrow light-heavy crude price differentials

The long-term outlook is for a narrow price differential between light and heavy crudes, and this discourages investment in upgrading equipment.

- **Global light-heavy price differentials.** The recession created a sharp drop in oil demand, and this collapsed light-heavy price differentials. Since the recession, the global price difference has remained narrow. One reason is that heavy oil refining capacity has outstripped available heavy feedstock—causing increased competition for these crudes, higher prices, and a shrinking light-heavy price differential. More recently, another cause of narrow differentials is the rapid growth of light, sweet crude supply in North America.^{***} With light oil oversupplying some North American regions, light

^{*}As measured in Canadian dollars. Source: IHS CERA North American Crude Oil Markets Service, which tracks and provides outlook for capital costs in oil sands projects.

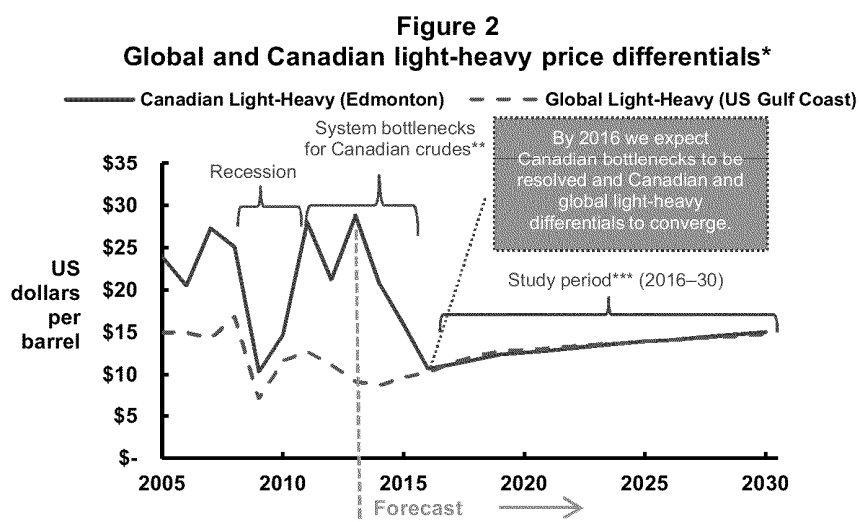
^{**}Capital costs for Alberta oil sands have historically been higher than those for other regions, owing mostly to higher labor costs, lower labor productivity (stemming from extreme weather conditions), and challenges constructing in a remote landlocked location.

^{***}Since 2011 North American light oil supply has been growing rapidly. The same horizontal hydraulic fracturing technology that unlocked vast reserves of shale gas has been applied to tight oil formations with startling success. Application of this technique is resulting in swift production growth.

crude prices are weak, and this is another factor keeping the price difference between light and heavy crudes narrow.

- Canadian light-heavy price differentials.** Along with global prices, Canadian light-heavy differentials collapsed during the recession. However, Canadian prices took a different path postrecession. Global light-heavy price differentials remained narrow, while western Canadian differentials widened. The primary cause for the diverging price paths is the rapid growth in North American oil supply. In the past few years both oil sands and tight oil have flooded inland refining markets, with limited outlets to other markets. The flood of oil has resulted in crude price discounts and wide light-heavy price differentials for western Canadian crudes. Although oil supplies are still growing, by 2016 we expect new pipelines will connect rising Canadian supply to new markets. These connections will alleviate the crude oversupply, and Canadian light-heavy price differentials should converge with global ones (see Figure 2).

Critical to our outlook is the assumption that Canadian crudes will have greater access to new markets. Key pipeline projects in our outlook include Flanagan South/Seaway twinning (2014) and Keystone XL (2015–16), both projects connect western Canada to the US Gulf Coast (USGC)—a region with considerable capacity for consuming heavy crude. If either project is delayed, we expect other pipeline projects could be advanced in their place within



Source: Platts, IHS CERA.

Disclaimer: Historical oil price data are extracted or derived by IHS CERA from Platts. All rights reserved. All liability for errors and omissions is hereby excluded by Platts and its sources. No representations or warranties are made by Platts or its sources concerning the data or any conclusions to be drawn from it.

*Canadian light-heavy price differential is the difference between SCO and Cold Lake Blend (a dilbit blend) in Edmonton in constant 2011 dollars. Global light-heavy price differential is the difference between Light Louisiana Sweet and Mexican Maya on the USGC in constant 2011 dollars.

**Since 2011 growing supply, pipeline bottlenecks, and refinery disruptions have contributed to price discounts and in temporarily widening the light-heavy differential for oil sands producers. As additional pipeline capacity is brought online over the next few years, these discounts should subside and the differential to narrow by 2016, after which differentials are expected to slowly widen but remain narrower than in the recent past.

***Study range was based on our assessment of the earliest date that a project could be completed and online, given a sanctioning decision today.

the 2014 to 2017 time frame.* In the same way, the alternative projects would ease the wide Canadian light-heavy oil price differentials. If sufficient transport capacity is not built, then prices for Canadian crudes would remain discounted, resulting in wider light-heavy price differentials than would otherwise be the case. However, this situation is not necessarily positive for investment in Alberta. Since the absolute value of all crudes would be depressed (compared with global prices), it may well encourage investment elsewhere.

UPgrading And rEfining ECONomiCS: ALbErTA COMPArEd wiTh AlTErNATiVE rEgiOnS

Scope and purpose

This analysis is generic and not indicative of any project currently being advanced.

The purpose of our analysis is to create a generic comparison across the range of potential investments for upgrading and refining of oil sands bitumen to help explain the comparative economics of Alberta with alternative regions as well as why plans for upgrading and refining in Alberta have changed.

While a number of oil sands refining and upgrading projects are advancing, the results of our analysis are not intended to reflect the economics of any actual project. The details of specific projects are proprietary and will vary from our generic examples. Further, integrated oil sands operators may evaluate investment decisions as incremental to an existing asset or as an integrated investment (both upstream and downstream).

The scope of our analysis also does not consider the economics for partial upgrading.** Nor does the scope consider petrochemical investments that could be associated with an upgrader or refinery and the corresponding impact of this investment on project economics.

The following is a summary and status report of the oil sands upgrading and refining projects currently being advanced, and how they differ from the generic assumptions used in our analysis:

- **Voyager upgrader.** The greenfield upgrader is a 200,000 barrels per day (bd) facility to be built in Fort McMurray by Suncor and partner Total E&P. The project was under construction (prior to the recession) and was put on hold during the downturn but restarted in 2011. In November 2012 Suncor announced it was reevaluating the economics of the project. Subsequently, in February 2013, Suncor announced a C\$1.5 billion write-down on its investment. A final decision on the project is expected in March 2013. The Voyager project differs from our generic model in that it is built in

*Other projects that could provide additional takeaway capacity include the Enbridge Line 9 full reversal (2014), Enbridge Mainline expansion (2015), TransCanada Eastern Mainline oil pipeline project (2017), and the Kinder Morgan Trans Mountain expansion (2017).

**Partial upgrading is not analogous to the upgrading discussed in this report, and technologies and specific products do vary. In general, the goal of partial upgrading is to upgrade the bitumen just enough to transport. While the product is typically higher quality than a typical bitumen blend, its characteristics are closer to a bitumen blend than the light SCO described in this report. Partial upgrading capital costs and product values are different from those described here, and consequently the results of our analysis do not reflect the economics for partial upgrading.

Fort McMurray, it has the potential to be integrated with upstream operations, and—since some expense has already been incurred—the capital costs should be lower.

- **North West Redwater Partnership Refinery.** In November 2012, North West Upgrading and partner Canadian Natural Resources sanctioned the first phase of construction of a greenfield refinery located outside of Edmonton. The first phase is 50,000 bd, and the facility will convert bitumen into refined products. The cost estimate for phase 1 is C\$5.7 billion. Differences between the project and our generic model include size, technology (the facility uses gasification), and refined products yields.
- **Kitimat Clean Refinery.** In August 2012, Kitimat Clean announced that it would submit an Environmental Assessment Application to build an oil sands refinery in Kitimat, British Columbia. The plant would convert bitumen into 390,000 bd of refined products destined for Asia export markets.* Compared with our generic model, the capital cost is lower (cost estimate from the early stages of planning is C\$13 billion for 390,000 bd of refined products). One reason for the expectation of lower cost is the plan to deploy very large modules fabricated in Asia for the construction. Other differences from our generic mode include yields of refined products, size, and location (ours does not prescribe to a particular location along the west coast).

Project types and markets included

Since the upgrading or refining of bitumen can be performed in a variety of geographical locations (in Alberta, in the market the fuel is consumed, or somewhere along the way), our economic evaluation considered a range of project types and market locations (see Table 1).

Table 1

Project types and markets included in iHS CERA analysis

<u>project types</u>	<u>Markets</u>
Greenfield upgrader	British columbia (West coast) Alberta (edmonton)
Refinery conversion	Alberta (edmonton) Quebec (Montreal) US Midwest (chicago) US Gulf coast (coast) Asia (South china)
Greenfield refinery	British columbia (West coast) Asia (South china) Alberta (edmonton)

Source: iHS ceRA.

*The diluents needed to transport the bitumen would be recycled back to Alberta by a pipeline.

Market locations

Although oil sands markets are geographically limited today, we anticipate that markets will expand.* Therefore, we have compared the economics in Alberta to those of existing and future markets:

- Existing markets: Alberta, the US Midwest
- Existing market, with large potential for future growth: the US Gulf Coast
- Future markets: eastern Canada and Asia (including export-orientated facilities along Canada's west coast)

For a more detailed explanation of future markets for oil sands, please see the IHS CERA Special Report *Future Markets for Oil Sands*.

Project types

We include three project types in our economic evaluation.

- **Greenfieldupgrader.** Greenfieldoil sands upgraders could be built in the Edmonton area (a region of almost 1.2 million people) of Alberta, close to where oil sands are extracted while providing access to export pipelines and local refineries.** Potential also exists to upgrade or refinebitumen “along the way” to the end consumer. For example, bitumen could be converted to SCO on Canada's West Coast before being exported to refineriesin Asia or elsewhere. Fort McMurray was not included because only integrated upgraders (upgrader built in conjunction with a mine or in-situ project) have been built or proposed there.
- **Refinery conversion.** Modifying an existing refineryto convert capacity to process heavier crudes, like bitumen, is much cheaper than building a new one. Existing refineriesin eastern Canada, US Midwest, US Gulf Coast, and Asia are all candidates for conversion projects. And although there are limited refineries to convert in Alberta, we have included this case in our analysis.
- **Greenfieldrefinery.**North America's demand for refinedproducts is flatto declining, providing fewer opportunities for greenfieldrefineries.Even so, because demand for some refinedproducts—specificallydiesel—is growing, we have included an Alberta refineryin our results. In contrast to North America, developing countries—including China—are increasing their demand for all refinedproducts. Although we anticipate that Asian refinerieswill supply most of the region's refinedproducts, some volumes could be imported. Consequently, our analysis includes both an Asian greenfield refinery and a greenfieldrefineryon Canada's west coast targeting exports to Asia.

*Most oil sands crude oil is consumed in western Canada and the US Midwest. Although limited quantities of oil sands reach every refining region in North America (US West Coast, US Gulf Coast, US Rockies, US East Coast, and central and eastern Canada), pipeline infrastructure is currently a limiting factor for greater movements of oil sands to other markets.

**Source: Statistics Canada (2012), 2011 Census.

Economic inputs

Although many factors have an impact on upgrading or refining finances, a few key variables dominate the economic return: the upfront capital costs, the price difference between light and heavy crudes (called the light-heavy price differential in our analysis), and the operating costs. To compare the economics among the project types and markets in our analysis, we identified probable values for each key variable (see Table 2 for a summary of inputs):

Capital costs

These are all the expenses for constructing a facility, including the cost of equipment, machinery, steel, instrumentation, engineering, design, and construction labor. Since the scope of projects can vary considerably, we assumed a project cost range—high and low. Differences in project cost arise mostly from three factors:

- **Project scope.** The project scope can vary considerably among projects—even projects of the same type. In the case of refinery conversion projects, some refineries on the US Gulf Coast require little to no capital investment to increase their consumption of bitumen blends since they are already able to process heavy crudes.* Conversely, existing refineries in most other regions are configured to consume lighter crudes (light, sweet and light, sour). These less complex refineries require more extensive modifications before they can process meaningful quantities of bitumen. Even among greenfield refinery projects the scope can vary. For example, projects that produce more diesel (instead of gasoline, or other heavy products) require more costly equipment. For our analysis we assumed conversion projects resulted in traditional refinery product yields (about twice as much gasoline as diesel). For greenfield refineries we ran two assumptions. One case assumed traditional refinery product yields (two times more gasoline than diesel); the other assumed the refinery was configured to maximize diesel production, resulting in equal amounts of gasoline and diesel. Since diesel is a higher-value product, refineries that maximize diesel production generate higher returns.
- **Construction techniques.** Owing to differing construction methods, inland locations are more expensive to build. With ocean access, larger components or modules of the facility can be built off site. Once complete, the modules can be transported to site and assembled like building blocks. This technique materially reduces the labor requirements and—consequently—the cost. Access to the ocean is critical, because modules can be the size of a football field and need to be transported by ship. Although inland locations can use this method, since the modules must be transported by truck, this materially reduces the module size and corresponding cost savings.
- **Labor costs.** Construction labor is a large factor in why costs vary among regions. In North America direct labor typically makes up 30% of a project's total cost, and labor costs in Alberta are higher than those of other regions. One cause is the limited

*The US Gulf Coast region is home to 30% of the world's coking capacity already, and the region currently processes approximately 2.4 mbd of heavy crude—similar to the bitumen blends from the Canadian oil sands. Since many refiners are already well suited to process heavy crudes, it is conceivable that no investment (zero capital cost) may be required to consume bitumen blends. For our analysis we ran both our high and low cases with the same capital cost of \$14,000 per flowing barrel (see Table 2).

Table 2

Key assumptions for economic calculations

project type	Location	capital cost (US\$ per 100,000 bbl of capacity)	operating cost (US\$ per barrel)	light-heavy differential (average US\$ from 2016 to 2030, US\$ per barrel)	light crude input (edmonton par (in edmonton))	Heavy crude input (Dijbit to bitumen (in edmonton))	Refined product yields (volume ratio of crude feed: gasoline: diesel)
Greenfield refineries	Alberta (edmonton)	\$7.2–8.6 billion	\$8.00–10.00	\$13.90–25.35 ³	edmonton par (in edmonton)	Dijbit to bitumen (in edmonton)	2:1:1 to 3:2:1
	West coast	\$5–6 billion	\$7.00–9.00	\$14.22–24.51 ³	Arabian light (on West coast)	Dijbit to bitumen (on West coast)	2:1:1 to 3:2:1
	Asia (Southeast China)	\$2.8–3.5 billion	\$4.50–6.50	\$12.16–14.66 ³	Arabian light (in Southeast China)	Dijbit (in Southeast China)	2:1:1 to 3:2:1
Refinery conversions	Alberta (edmonton)	\$2.8–4 billion	\$6.00–8.00	\$13.90	edmonton par (in edmonton)	Dijbit (in edmonton)	3:2:1
	Quebec (Montreal)	\$1.9–2.8 billion	\$5.00–7.00	\$13.90	edmonton par (in Montreal)	Dijbit (in Montreal)	3:2:1
	US Midwest	\$1.7–2.6 billion	\$5.00–7.00	\$16.19	Wichita (Chicago)	Dijbit (in Chicago)	3:2:1
	US Gulf coast	\$0–1.4 billion	\$4.50–6.50	\$13.77–16.27	US (St. James)	Dijbit (on US Gulf coast)	3:2:1
	Asia (Southeast China)	\$1.2–2 billion	\$4.00–6.00	\$12.16–14.66	Arabian light (in Southeast China)	Dijbit (in Southeast China)	3:2:1
Upgraders	Alberta (edmonton)	\$6–7 billion	\$8.00–10.00	\$29.03	SCO (in edmonton)	Bitumen (in edmonton)	n/a
	West coast	\$4.2–4.9 billion	\$7.00–9.00	\$28.01	SCO (on West coast)	Bitumen (on West coast)	n/a

Source: Various sources, IHS CERA, 2013.

1. Light-heavy differential based on average price from 2016 to 2030 of the most prevalent light crude oil in each market and of dijit or bitumen (depending on the project) delivered to each market. The price range was chosen to start in 2016 as it was deemed the earliest that a facility could be operational given a sanctioning decision today. Alberta-based oil sands crude prices were adjusted to reflect expected pipeline and tanker tolls—assuming the lowest-cost transportation assumptions from edmonton to each market are \$4 to the West coast; \$6 to \$8.50 to Asia; \$4.50 to the US Midwest (Chicago area); \$8 to \$10.50 to the USGC; and \$6 to Montreal. The tolls to both the USGC and Asia are less certain; therefore, a high and low transportation assumption resulted in a range for the light-heavy differential.

2. Refined product yield assumptions varied for greenfield refineries. The low case assumes that the refineries target more gasoline, while the high case targets more diesel. For conversions, the refined product yields were assumed to target gasoline. With the exception of West coast Refinery (where we assumed the products would be sold to the Asian market), we assumed that refined products would target the local market.

3. The wide differential is based on consuming bitumen; the narrow differential is based on consuming dijit.

4. Arabian light was chosen as representative of light sweet crude oil on the West coast to reflect global crude access and orientation of facility as an export facility targeting Asia.

5. For Montreal, an inlet crude (edmonton par) was chosen to reflect anticipated access to inlet crudes which would come with pipeline access to inlet and markets.

6. Approximately 2.4 mbd of capacity on the USGC is already suited to consuming heavy oil sands crude oil, and no capital investment may be required.

regional pool of construction workers (demand from oil sands projects often exceeds local supply, requiring workers to be recruited from across Canada and the globe). Another is Alberta's landlocked location, keeping on-site labor requirements relatively high (see construction techniques). Climate is also a concern; cold weather decreases worker productivity.

Light-heavy price differential

Depending on the project type, the crudes used for the light-heavy price differential vary.

- **Greenfield refineries and refinery conversions.** When considering a heavy crude oil refinery investment, whether it's a greenfield facility or a conversion project, refiners compare the profit for consuming light crude to the profit from gearing up to take heavy crude. Heavy crudes are more expensive to process (it takes more energy and requires expensive equipment). In the end, the price discount for heavy crude must sufficiently cover the cost of the additional equipment and energy. For refinery conversion cases the light-heavy price differential is based on the difference in the price for the light crude and bitumen blend (for this report we assumed this to be dilbit).^{*} For North American greenfield refinery cases, we assumed two potential scenarios—one where bitumen blend (dilbit) was converted to refined products and another where bitumen only was converted to refined products (assuming that the diluents used to transport the bitumen would be recycled back to Alberta for a fee).^{**} In the later case the price difference between the light crude in the region and bitumen were compared.
- **Greenfield upgrader.** Since the input to an upgrader is bitumen and the output is SCO, our light-heavy price differential is based on the price difference between SCO and bitumen. Even when we considered the economics for an upgrader outside of Alberta, we used SCO and bitumen (again, assuming that the diluents were recycled back to Alberta for a fee).

Built into our Table 2 outlooks for light-heavy price differential is the assumption that new pipelines are constructed and western Canadian crudes have sufficient access to heavy crude markets from 2016 to 2030. Consequently, light-heavy price differentials reflect global market pricing and (compared with today) are relatively narrow.

Operating costs

As the name suggests, these are the day-to-day costs for the parts, maintenance, materials, labor, and energy required to run the facility. As with capital costs, the higher the operating costs, the more challenging the economics.

^{*}The light crude oil chosen for each market was based on the expectation of the most prevalent light crude oil in the region where the facility is located when it is operating. For markets where the light crude oil or bitumen blend are not currently marketed, our best estimate of future transport costs was used.

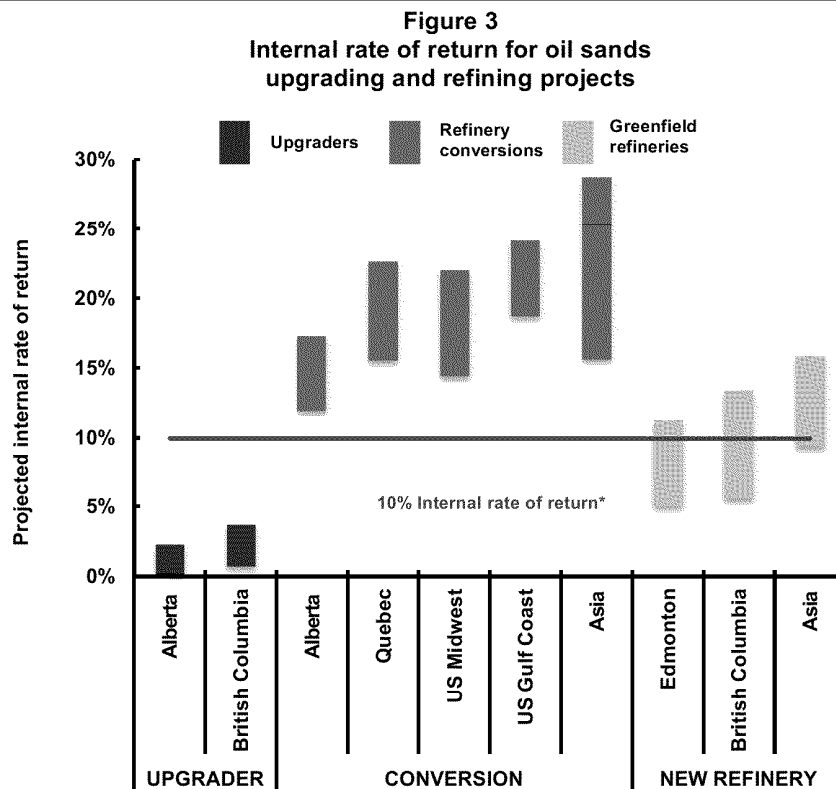
^{**}The cost associated with diluent return was included as part of the bitumen price.

The results

To compare the economics for processing bitumen in Alberta to that of other locations, we compared the internal rate of return (IRR) across all project types and markets (see Figure 3).^{*} In reality, the IRR that is acceptable to secure an investment depends on the amount of debt versus equity funding for a project. The threshold IRR is unique for every company and project. Although we have highlighted a 10% IRR rate as an indicative threshold in Figure 3, this is not necessarily the cutoff for all projects. Actual thresholds could be higher or lower than this indicative value.

Refinery conversions

As a group, refinery conversions provide the highest potential returns for processing heavy oil sands because the capital investment is significantly lower than that for a greenfield project. For the US Gulf Coast, we assumed a capital cost for converting to process heavy crude. However, numerous refineries in the Gulf region are already fitted to consume heavy oil and do not require conversions. And while North American conversion economics look strong, tight oil is a hurdle for these projects. Growing availability of light quality tight oil provides refiners little incentive for undertaking costly projects geared at increasing consumption of heavy crudes.



Source: IHS CERA.

^{*}IRR is a way to measure the economics across all investments in a comparable manner and is a typical metric for comparing the economics among alternative projects. The IRR calculates the rate of return so that the net present value (NPV) of all future capital expenditures and revenues is zero.

Greenfield refinery

The strongest greenfield refinery investment returns are in Asia, where oil demand is growing. The difference between North America and Asia is primarily the result of Asia's lower project costs (see the box "Why are construction costs in China lower?"). Considering that Asia needs to build new refineries regardless (to keep pace with growing demand for refined products), the economics for heavy oil conversions are likely more reflective of the actual investment decision to process heavy oil. Consequently, if oil sands could access Asia in meaningful quantities, investment in greenfield refineries processing dilbit could be economic.

Although downside risk exists, given the right conditions, the economics of greenfield heavy oil refineries in Alberta and British Columbia could work. The ranges of potential returns in our results are driven mostly by the difference of project types considered. The weakest returns represent a refinery consuming dilbit and producing traditional product yields (more gasoline than diesel). The highest return reflects a refinery consuming bitumen and producing equal volumes of diesel and gasoline. While the actual greenfield refinery projects being advanced in Alberta (i.e., North West Redwater Partnership) and British Columbia (i.e., Clean Kitimat) are not direct comparisons with these generic examples, they are the most similar to the high IRR results.

There are downside risks to the Alberta and British Columbia greenfield refinery cases. For the Alberta refinery we assumed that the refined products were sold in the local market and did not oversupply it. If too much refinery capacity is built, refined products could flood the market and weaken product prices, challenging new refinery economics. For the British Columbia greenfield refinery case, we assume the refined products are transported to Asia and receive competitive prices. If transportation costs are higher than we assumed or if buyers require discounts, project economics would weaken.*

Upgrading

Although the economics for greenfield upgrading are challenging, returns for upgrading on the West Coast are a bit stronger than in Alberta. Key factors are lower capital costs and higher prices for light crude on the west coast compared with Alberta.**

So, how do the economics for upgrading in Alberta compare with pre-recession economics? When we rerun our Alberta upgrading economics, considering 30% lower capital costs and a light-heavy spread that reflects the thinking prior to the recession, the IRR of an Alberta upgrader ranges between 10% and 13%—considerably higher than our current outlook and above our indicative economic threshold for new investments.

Proponents of upgrading in Alberta have suggested that the government should boost the economics by creating incentives to upgrade. But what would it take to improve upgrading

*Marine shipping costs can vary for a number of reasons: density of product, vessel size, distance, and global demand for tankers. In this report refined product transport costs from the west coast to Asia averaged from US\$1.20 to US\$2.00 per barrel depending on the product (2016 to 2030 average). This assumed using Aframax vessels transiting one way (no return) to South China.

**The outlook for west coast oil price is comparatively higher owing to the oversupply of light crudes in inland North America, which (even considering new pipeline connections) is expected to depress Alberta prices compared with coastal ones—potentially in the range of US\$2 to US\$3 per barrel.

economics? Although there are a number of potential incentives to be considered, the cost of capital and the price of bitumen are two key levers:

- **Cost of capital.** The government could provide loan guarantees to third parties or launch its own upgrading enterprise. Both would reduce the cost of capital and, consequently, the IRR required for an investment to proceed. However, by doing this, the government takes on financial risk.
- **Price of bitumen.** The Alberta government has the option to receive royalties in the form of bitumen barrels instead of cash. The government could sell the royalty barrels at a discounted price to an upgrader. This would widen the light-heavy price difference and strengthen upgrading economics. However, this is a costly proposition. For the Alberta upgrader to boost the IRR to 8%, the bitumen price must be discounted by between US\$10 and US\$15 dollars per barrel. For a 100,000 bd facility, this subsidy would cost in the range of a half billion dollars a year.

why are construction costs in China low

the primary advantage over North America of building a refinery in china is low capital costs. cost of labor is the key reason for the gap. labor cost for a North American refinery project typically constitutes about 30% of the project's total cost; for china, it makes up about 10%. china's low labor rates factor into additional discounts for labor-intensive manufactured goods—such as process equipment and fabricated steel products.

projects built in china by joint ventures (JVs) with Western companies tend to cost more than projects built solely by chinese companies. typically, the cost of a chinese-led project is lower because the chinese companies generally pay lower wages, rely almost exclusively on chinese engineering and construction contractors, and offer more scope and independence to these firms. JVs focus more on meeting Western quality standards and use more expensive international engineering resources, leading to higher overall costs. in our analysis we assumed costs that are reflective of a project built by a chinese firm.

PArT 3: imPLiCATiOnS—PrOdUCTiOn, jObS, gOvErnmEnT rEvEnUES, And gREEnhOUSE gAS EmiSSiOnS

The conventional wisdom is that by pipelining bitumen, Alberta is exporting the jobs and economic benefits from upgrading or refining. This section challenges that thinking. Construction of bitumen processing facilities in Alberta places additional strain on a tight job market, increasing already high costs for oil sands development and further challenging investment. Alternatively, in a case where the region's limited pool of construction workers are deployed on bitumen-producing projects (instead of processing facilities), this drives production higher, creating more jobs and benefits to Alberta and Canada than construction of upgrading or refining facilities. It also reduces the GHG intensity of oil sands production.

ThE AlBErTA lAbOr lImiT

Alberta has a relatively small skilled trade workforce for constructing industrial projects—in our estimate about 17,000 workers are available for construction projects (welders, pipefitters, electricians, and other skilled trades) in Alberta. These workers support oil sands activity plus other industrial projects in the province, such as electrical generation, pipeline construction, infrastructure, and maintenance.

Often Alberta labor demand exceeds supply. Staffing industrial turnaround work (large maintenance projects that are periodically executed over a one- to three-month period in the spring and fall) is a perennial problem. To staff turnarounds, multiple projects demand thousands of skilled trade workers at the same time. During the turnaround seasons, workers from the rest of Canada are regularly called on. There were longer-term labor shortages in 2007 and 2008 when the demand for construction labor exhausted both Alberta and Canadian supply. Foreign workers were recruited to fill the gap. Now, once again, the Alberta labor market is constrained. Foreign workers are already at work on oil sands and other projects in the province, and their numbers are projected to ramp up over the next few years.

During the 2007 and 2008 labor shortage, projects faced expensive implications. Wage rates were one factor, increasing by 5.9% annually.* In addition total labor costs were boosted by overtime pay (over a 40-hour week, wages are paid at time-and-a-half and double rates), signing bonuses, employee recruitment costs, and living allowances. Worker productivity also took a hit: as the labor shortage grew, the average skill level of the workforce declined. But perhaps the most costly implication of the shortage was the expensive start-up and operational issues that numerous projects faced.

Since 2008, IHS CERA has been tracking and projecting industrial construction labor demand in the province as well as estimating available supply from Alberta and the rest of Canada.** Considering the IHS CERA outlook for supply and demand of Alberta construction workers, to avoid the need for foreign workers and the costly implications of a labor shortage, the province should keep total construction labor demand at around 25,000 workers. At this level, workers from other parts of Canada are still required to support projects, although

*Alberta building trade rates from third quarter 2006 to second quarter 2009.

**Labor data are available within our North American Crude Oil Market Service, www.ihs.com/products/cera/energy-forecasting/canadian-oil-sands.aspx.

no more than what has historically been recruited. Since the demand from other Alberta industrial projects averages near 8,000 workers, this means that oil sands demand would need to stay near 17,000 workers.

Critical to our assumption that labor remains a long-term constraint to growth are the expectations that oil sands growth remains strong and that government policy for accessing foreign labor does not change significantly from today (i.e., existing barriers for accessing and keeping foreign labor in the province continue).*

Comparing two future scenarios for oil sands growth

In a scenario under which oil sands growth continues to be strong and construction labor continues to be the most critical constraint for growth, the province creates more jobs and economic benefits by not upgrading bitumen. To illustrate this, we compared the outcomes of two future scenarios to 2020: one where all new supply is from bitumen—referred to as bitumen only; and another where the amount of bitumen upgraded in the province stays about static with today—referred to as 60% upgrading. In both future scenarios we assume that Alberta is limited to 17,000 workers for new oil sands construction.** Even though this comparison is theoretical, it enables a quantification of the affects of upgrading (or not) on production growth, jobs, government revenue, and GHG emissions.

Although refining or other spin-off investments (such as petrochemical projects) were not included in the analysis, the jobs and economic benefits are not dissimilar to those from upgraders. Consequently, under an assumption that part or all of the upgrading capacity was substituted with refining or petrochemical capacity, the direction of the results would be similar.

Production

Upgraders improve the quality of oil sands crude oil, but they do not add production. In a bitumen-only scenario, since all construction workers are deployed in bitumen-yielding mining or in situ projects, this results in almost 1 mbd more production by 2020 than the 60% upgrading scenario.

- **Bitumen-only scenario.** 2020 oil sands production (SCO and bitumen): 3.4 mbd
- **60% upgrading scenario.** 2020 oil sands production (SCO and bitumen): 2.5 mbd

Direct long-term jobs

Long-term jobs from oil sands facilities include roles in project operation, supervision, administration, maintenance, and engineering, as well as periodic maintenance work. For

*In June 2012 the Canadian government changed the process for accessing foreign labor by introducing an accelerated labor market opinion process. The new process shortened the timeline, but it still takes a company 6 to 12 months to bring a new foreign worker to Canada. Other barriers include limits to the cumulative time that workers can stay in Canada and difficulty in immigrating.

**Other key assumptions include New production is assumed to be 80% of productive capacity additions. Growth is 45% from mining and 55% from in-situ projects. Interest rate for NPV calculations is 10% and the tax rate 29%. Values for crude for this analysis are consistent with those reported in part 2.

mines and in-situ projects, there are additional jobs for sustaining production levels (such as extending mine trains or drilling additional wells for in situ). For projects of comparable size, in-situ projects and mines provide more long-term jobs than upgraders. Consequently, when construction workers are deployed to build upgraders (resulting in fewer mining or in-situ projects being built), the number of long-term jobs in the province is actually lower.

- **Bitumen-only scenario.** New long-term direct jobs from now to 2020: 12,500
- **60% upgrading scenario.** New long-term direct jobs from now to 2020: 8,500

Government royalties

A royalty is the price Alberta charges a producer for the resource it extracts—bitumen in this case. Consequently, upgrading bitumen does not generate additional royalties for the province. Since the bitumen-only scenario results in almost 1 mbd more production, it also provides more royalties.

- **Bitumen-only scenario.** NPV of royalties for new facilities brought on between now and 2020 over 40 years: C\$29 billion (annual average of C\$5.5 billion per year)*
- **60% upgrading scenario.** NPV of royalties for new facilities brought on between now and 2020 over 40 years: C\$15 billion (annual average of C\$2.7 billion per year)*

Income taxes

As shown in part 2, Alberta upgraders struggle to generate positive cash flow and consequently pay minimal income tax. Since in situ and mining projects generate positive returns, the bitumen-only scenario (with higher production and cash-flows) results in more income tax revenue.

- **Bitumen-only scenario.** NPV of taxes for new facilities brought on between now and 2020 over 40 years: C\$18 billion*
- **60% upgrading scenario.** NPV of taxes for new facilities brought on between now and 2020 over 40 years: C\$7 billion*

GHG emissions

Along with production growth, aggregate emissions from oil sands are projected to grow. The GHG emissions for extracting a barrel of bitumen vary between 29 and 89 kilograms of carbon dioxide equivalent (kgCO₂e) per barrel; upgrading adds another 51 kgCO₂e per barrel.** Considering the emissions produced in Alberta only, the bitumen-only scenario reduces the GHG intensity (because it avoids the extra GHG emissions from upgrading). However, when aggregate emissions from the oil sands are considered, the bitumen-only

*All NPV calculations assume 10% interest.

**The lower range is for mining bitumen, and the higher range is for producing bitumen from the cyclic steam stimulation method. Source: IHS CERA Special Report *Oil Sands Dialogue: Oil Sands, Greenhouse Gases, and US Oil Supply: Getting the Numbers Right—2012 Update*.

Table 3

2020 GHG emissions compared: bitumen-only and 60% upgrading scenarios

	Alberta GHG emissions (extraction and upgrading)		Alberta GHG emissions (extracting through to refining)	
	Bitumen-only	60% upgrading	Bitumen-only	60% upgrading
2020 aggregate GHG emissions from oil sands sector (mt CO ₂ e per year)	90	82	174	140
2020 average GHG intensity of production (kg CO ₂ e per barrel)	72	89	139	153

Source: November 2012, IHS CERA Special Report *Oil Sands Dialogue: Oil Sands, Greenhouse Gases, and US Oil Supply: Getting the Numbers Right—2012 Update*.

1. This analysis assumes no significant improvement in GHG intensity from 2012 to 2020 and does not factor in the impact of carbon capture and storage. The bitumen-only case considers the GHG emissions for transporting diluent to the refinery and back to Alberta.

scenario (with higher overall production) results in higher total GHG emissions—8 megatons of CO₂e per year higher than the 60% upgrading scenario (see Table 3).

Expanding the boundary beyond Alberta (including GHG emissions from crude transportation and refining outside of the province) changes the magnitude but not the direction of the findings. Considering all emissions from oil sands extraction to refining (including upgrading and crude transport), the GHG intensity of the bitumen-only scenario is still lower than the 60% upgrading scenario.* The bitumen-only scenario still has higher aggregate emissions (stemming from the higher overall production).

Although the aggregate GHG emissions from oil sands in the two scenarios are significant, it is important to keep the total emissions in perspective. By 2020 the aggregate emissions from oil sands are less than 0.5% of global emissions**. Further, in the absence of oil sands development, the majority of the emissions in Table 3 would still be generated. Without growth in oil sands, world oil demand would be unchanged. Consequently, oil sands supply would be substituted by other crude oils, which also generate GHG emissions.***

*On an intensity basis, although refining bitumen is more GHG-intensive than refining SCO, the combined emissions from the two-step process (upgrading bitumen and then refining) is still higher (resulting in 97 kgCO₂e per barrel, compared with 62 kgCO₂e per barrel for refining bitumen directly). Source: IHS CERA Special Report *Oil Sands Dialogue: Oil Sands, Greenhouse Gases, and US Oil Supply: Getting the Numbers Right—2012 Update*.

**Using IHS Global Scenario projections, 2020 GHG emission range from 32,000 to 37,000 mtCO₂e per year.

***When GHG emissions are viewed on a well-to-wheels basis—considering all emissions from producing oil through to combusting the fuel in a vehicle engine—oil sands are 4% to 18% higher than the average crude and within the same range as some other sources of oil that could replace oil sands supply. Source: IHS CERA Special Report *Oil Sands Dialogue: Oil Sands, Greenhouse Gases, and US Oil Supply: Getting the Numbers Right—2012 Update*.

PArT 4: COncIUSiOnS

Prior to the onset of the global recession, the industry was set to upgrade and refine bitumen in the province. Oil sands companies were gearing up to spend more than US\$100 billion on oil sands processing facilities in Alberta. Five years later, many projects have been canceled or delayed.*

The cancellations reflect the reality that, in many cases, value-added upgrading and refining in Alberta does not equate with adding profit. However, there are exceptions. Although the return is not as high as in Asia, given the right conditions the economics of new refinery projects in either British Columbia or Alberta could work (assuming that the refinery can consume bitumen, maximize diesel production, control capital costs to a minimum, and maintain a strong price for its products by not oversupplying the market). A key risk with any new refinery investment in North America is the flat to declining demand for refined products in the continent. Consequently, any sizable new refining facility must export its product overseas, likely to Asia, where it would need to compete with refiners there.

Another factor challenging North American upgrading and refinery conversion investments is the emergence of tight oil. Tight oil provides growing supplies of light crude, similar to upgraded oil sands (SCO). With growing supplies of light crude, the continental price difference between light and heavy crudes is expected to remain narrow. Tight oil is also reducing incentives for investing in heavy oil conversion projects, since refiners have plenty of light crude to process.

At this juncture, in many cases investors fail to get a reasonable return on the billions they must commit for a bitumen processing facility. However, this may not be all bad for Alberta. Considering the region's constrained labor market, less investment in processing facilities will enable faster growth in oil production, which also provides jobs and revenue to the province. Further, by deploying resources to build bitumen production now, the province is not closing the door to bitumen processing in the future. If the future unfolds differently than we assume and the economics for value-added investments strengthen, the option will always remain to upgrade and refine then.

*Refining and upgrading projects that are considered canceled or delayed include OPTI/Nexen future phases, Synerude Mildred Lake bottleneck and expansion, BA Energy/Value Creation, Albion Sands Scotford 2, Statoil Upgrader, Total E&P Northern Lights, Peace River Oil BlueSky Refining, Husky Energy, and the Lloydminster upgrader expansion.

rEPORt PARticiPAnTS And rEViEWerS

On 7 June 2012, IHS CERA hosted a focus group meeting in Calgary, Alberta, providing an opportunity for oil sands stakeholders to come together and discuss perspectives on the key issues related to upgrading and refining in Alberta. Additionally, a number of participants reviewed a draft version of this report. Participation in the focus group or review of the draft report does not reflect endorsement of the content of this report, for which IHS CERA is exclusively responsible.

Alberta Department of Energy

Alberta's Industrial Heartland Association

Alberta Innovates, Energy and Environmental Solutions

Alberta School of Business (University of Alberta)

American Petroleum Institute (API)

Canadian Association of Petroleum Producers (CAPP)

Canadian Building Trades (Building and Construction Trades Department, AFL-CIO, Canadian Office)

Canadian Oil Sands Limited

Cenovus Energy Inc.

Devon Energy Corporation

Conoco Philips Company

Chevron Canada Resources

Canadian Natural Resources Ltd.

IBM Canada

Imperial Oil Ltd.

In Situ Oil Sands Alliance (IOSA)

Marathon Oil Corporation

Natural Resources Canada

Nexen Inc.

Shell Canada

Statoil Canada Ltd.

Suncor Energy Inc.

Total E&P Canada Ltd.

TransCanada Corporation

iHS CERA TEAM

JACKIE FORREST, Senior Director, leads the North American crude oil Markets service with iHS and heads the research effort for the *IHS Oil Sands Energy Dialogue*. She actively monitors emerging strategic trends related to oil sands and heavy oil, including capital projects, economics, policy, environment, and markets. Recent contributions to oil sands research include reports on the life-cycle emissions from crude oil, the impacts of low-carbon fuel standards, effects of US policy on oil sands, and future markets for Canadian oil sands. Ms. Forrest was the iHS CERA project manager for the Multiclient Study *Growth in the Canadian Oil Sands: Finding the New Balance*, a comprehensive assessment of the benefits, risks, and challenges associated with oil sands development. She is the author of several iHS CERA private Reports, including an investigation of US heavy crude supply and prices and an investigation of West Texas Intermediate's recent disconnect from global oil markets. Before joining iHS CERA Ms. Forrest was a consultant in the oil industry, focusing on technical and economic evaluations of refining and oil sands projects. Ms. Forrest is a professional engineer and holds a degree from the University of Calgary and an MBA from Queens University.

KEVIN BIRN, Associate Director, North American crude oil Markets, provides strategic analysis for the *iHS Oil Sands Energy Dialogue*. His expertise includes oil sands development, Canadian pipeline infrastructure, energy modeling, and Canadian energy policy. Prior to joining iHS CERA Mr. Birn held various positions with the Government of Canada as a Senior economist at the Department of Natural Resources Canada. During this time he worked on an array of energy issues, including natural gas and crude oil supply and demand, pipeline infrastructure, energy modeling, and Aboriginal consultation. The majority of his work focused on the Canadian oil sands policy. Mr. Birn was the lead author of the Natural Resources Canada's 2010 oil sands paper *A Discussion Paper on Oil Sands: Opportunities and Challenges*. Mr. Birn was also member of the team that developed the North American unconventional oil outlooks and recommendations for the 2011 National Petroleum Council report *Prudent Development of Natural Gas & Oil Resources*. This included the Canadian oil sands, US oil sands, tight oil, oil shale, and Canadian heavy oil. Before his posts with the Government of Canada, Mr. Birn briefly taught business economics at the University of Alberta School of Business and helped establish a software company in which he remains a partner. Mr. Birn holds a Bachelor of Commerce and a Master of Arts in Economics from the University of Alberta.

We also recognize the contribution of Carmen Velasquez, iHS CERA Associate Director, to this report.

To: Rader, Cliff[Rader.Cliff@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]
Cc: aswift@nrdc.org[aswift@nrdc.org]; jaccard@sfu.ca[jaccard@sfu.ca]; Bromm, Susan[Bromm.Susan@epa.gov]
From: Lena Moffitt
Sent: Mon 4/15/2013 2:23:54 PM
Subject: Thank you for meeting

Hi Cliff and Ben

Thank you so much for meeting with us on Thursday to discuss tar sands and the Keystone XL SEIS. We very much look forward to seeing your comments on the document. I know Anthony has some follow-up materials to pass along - Cliff, could you share the other folk's contact info? I wasn't able to catch everyone's name.

Thank you again for all you're doing, always nice to see you.

Cheers,

Lena

--

Lena Moffitt

Sierra Club

202-675-2396 (w)

505-480-1551 (c)

To: Swift, Anthony[aswift@nrdc.org]
From: Swift, Anthony
Sent: Thur 4/18/2013 5:22:53 PM
Subject: Reuters debunks State's claim of major tar sands imports by rail if Keystone XL pipeline rejected

Greetings,

I want to let you all know that Reuters [published an investigation](#) today debunking the State Department's draft Supplemental Environmental Impact Statement (SEIS) conclusion that rail can provide an alternative for Keystone XL. The Reuters story demonstrates that rail is not an economically viable alternative for Keystone XL and corroborates a chorus of industry and financial voices observing that Keystone XL is critical for the expansion of tar sands production and the climate impacts associated with it.

Reaching out to many of the same industry sources the State Department cited in its draft SEIS, the Reuters story illustrates the errors in State's analysis that led it to dramatically overstate the potential of rail to move tar sands. This story demonstrates that the United States can reject higher carbon fuels and climate instability by rejecting Keystone XL.

I write about the significance of the story in [my blog](#).

Best,

Anthony Swift | Attorney, International Program

Natural Resources Defense Council | www.NRDC.org

1152 15th St. NW, Suite 300 | Washington, DC 20005

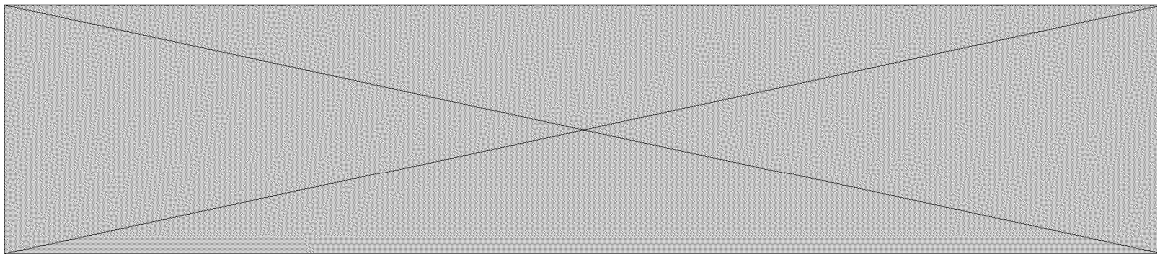
phone: 202.513.6276 | cell: 215.478.4967 |

Blog: <http://switchboard.nrdc.org/blogs/aswift/>

To: perciasepe.bob@epamail.epa.gov[perciasepe.bob@epamail.epa.gov]
From: Gene Karpinski
Sent: Fri 1/31/2014 10:30:31 PM
Subject: BREAKING: Critical information released on Keystone XL

Bob -- Just a few hours ago the State Department released its final environmental review of the dirty Keystone XL tar sands pipeline. Now it's time for President Obama and Secretary Kerry to finally reject this dangerous pipeline once and for all. **We're organizing a massive rapid response effort to launch this Tuesday -- but we need your help.**

There are still a few hours until midnight, which means you've still got time to renew your LCV membership *and get your gift doubled* to go twice as far to fight this risky pipeline. [Renew your LCV membership for just \\$5 >>](#)



This is a critical time to donate to our campaign against the dangerous Keystone XL tar sands pipeline. We need you now more than ever. No regrets: Renew your expired membership for just \$5 and stop this pipeline for good >>

Bob,

**DEADLINE: Midnight
Tonight!**

We're just \$5,000 away from our \$250,000 goal. You could push us over the top. Stop Keystone XL. Fight Climate Change Deniers. **Stand with LCV today.**

Renew your membership now and every dollar will

be doubled (along
with any other gif
you make during
2014!) >>

The deadline for our 2014 Membership Drive is at midnight tonight.

This is one of our most important deadlines of the year because what we raise by midnight tonight will decide what we achieve for the rest of 2014.

You've probably heard that it's going to be a big year for the environment. There will likely be a final decision on Keystone XL...

...and climate change deniers in the House and Senate are attacking the EPA and blocking action on climate change....

...and it's a critical election year.

This is the last chance to set us up to win big in 2014. If you give by midnight, **every single dollar you give will be *doubled*.** And as long as you make your membership gift before midnight, any other donation you make for the rest of the year will be matched too. **Don't wait another moment -- renew your lapsed LCV membership for just \$5 right now.**

I hope you're not on the fence about renewing your membership -- but if you are, just listen to what happened in Canada last weekend: **a natural gas pipeline operated by TransCanada -- the company trying to build Keystone XL -- caught fire and exploded.**

TransCanada has been arguing that their pipelines are safe. **But do flames shooting 500 feet into the air sound safe to you?** Now imagine what could happen if the same company were allowed to build a gigantic pipeline through our country's heartland that would transport the dirtiest oil on earth. A real recipe for disaster.

Bob, we have to make sure the public and our government know about the dangers that Keystone XL would pose to our health, our environment, and our planet's future. This could be one of the last chances you have to contribute to our campaign to stop this dangerous pipeline. If you let it pass you by -- I really think you'll regret it.

Renew your membership for just \$5 right now and every dollar will be matched, now and for the rest of 2014!

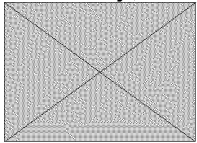
I cannot stress enough that this is going to be a huge year for the environment. But

whether it's a huge success -- or a huge disaster -- depends entirely on people like you and me, and how hard we're willing to fight back against the dirty energy industry and their attempts to push through dangerous tar sands pipelines, devastate the EPA, and peddle their influence in government.

As an LCV member in 2014, you'll be on the front lines of the push against Keystone XL... the fight against climate change deniers and Tea Party candidates seeking to dominate Congress... and you'll be at the very heart of America's environmental movement. **You only have a few hours left -- don't miss out on this! Renew your lapsed membership for just \$5 before midnight. Every dollar will be *doubled* -- and so will any other gift you make for the rest of 2014.**

Our actions right now will set the tone for the rest of 2014 -- I really hope you'll join us in making this a year to remember, Bob.

Sincerely,



Gene Karpinski

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1920 L Street, NW Suite 800
Washington, DC 20036
202-785-8683

...
[nonprofit software](#)

To: Mccarthy, Gina[McCarthy.Gina@epa.gov]
From: Environment America
Sent: Sat 2/1/2014 1:48:18 PM
Subject: Docket ID No. EPA-HQ-OA-2013-0582

Feb 1, 2014

Ms. Regina McCarthy
William Jefferson Clinton Federal Building, Room 3000
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

Dear Ms. McCarthy,

All our waterways should be clean enough to drink from, fish from and swim in without risk of pollution--from our local rivers and streams, to iconic waters like the Chesapeake Bay and the Great Lakes. Unfortunately, loopholes in the Clean Water Act have left many of our smaller waters unprotected, including those that feed and filter the drinking water for 117 million Americans.

Please close these loopholes and take a strong stand AGAINST fracking and the Keystone XL pipeline, both of which will have major impact on our watersheds.

Pollution across our country, on farms and mountains, in forests and wetlands spreads through streams and aquifers downstream to affect our lakes and oceans.

Please take every step your agency can to protect our land and its people.

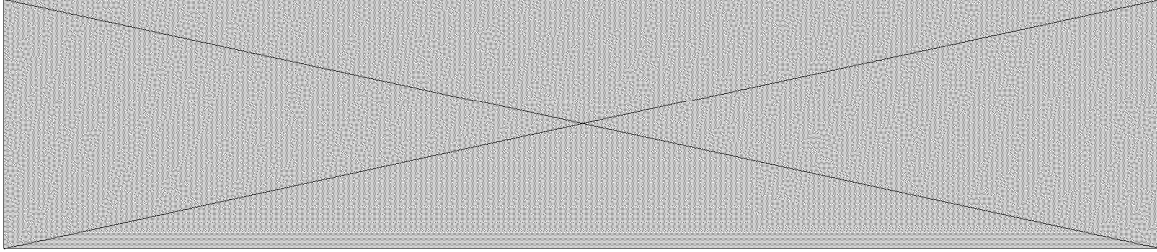
Please move forward to protect our environment and our health by restoring Clean Water Act protections to all America's waterways, including all our streams and wetlands.

Sincerely,

Ms. Liz Amsden

Ex. 6 - Personal Privacy

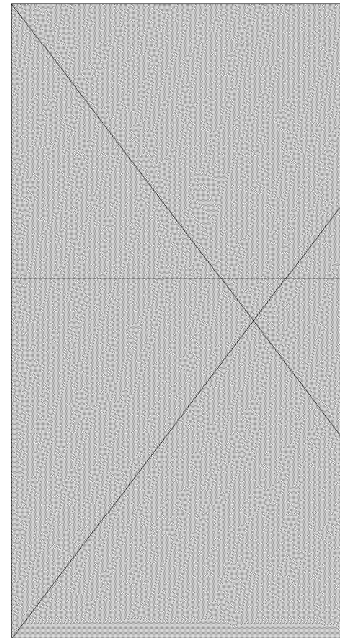
To: perciasepe.bob@epamail.epa.gov[perciasepe.bob@epamail.epa.gov]
From: Vanessa Kritzer
Sent: Wed 2/5/2014 5:10:17 PM
Subject: This is obvious, Secretary Kerry:



Tell Secretary of State John Kerry: The dirty Keystone XL tar sands pipeline is in our national interest and must be rejected >>

Bob,

**URGENT: Final State
Department comment period on
Keystone XL!**



**Tell Secretary Kerry
reject this dirty pipeline
and protect our climate
now >>**

As you've probably heard by now, on Friday the State Department released its final environmental review of the dangerous Keystone XL tar sands pipeline.

In a truly inspiring feat of grassroots organizing, on Monday, we worked with groups and activists across the country to bring together more than **10,000 people in 284 vigils in 49 states** to remind President Obama and Secretary Kerry to listen to people, not polluters, when making the final decision on this risky pipeline.

Now you might be asking, why did the release of a report trigger all of our activism alarm bells?

Because now it's time for Secretary of State John Kerry to tell President Obama whether he thinks it is "in our national interest" to approve this dirty and dangerous pipeline. And what he says could be one of the *biggest determining factors in President Obama's decision.*

Clearly, we know the answer -- NO!

Climate scientist James Hansen has said that if Canada is able to develop its tar sands oil reserves, it will be "game over" for our climate. This pipeline is a threat not only to people living in America's heartland, but to people around the world who care about our planet's future.

But if we want Secretary Kerry to say the same thing, we have to speak out now during the public comment period on the State Department's National Interest Determination of Keystone XL.

Tell Secretary Kerry: Get the facts right about the dangerous Keystone XL tar pipeline -- it's not in our national or global interest!

President Obama has said in the past that he will not approve the Keystone XL tar sands pipeline if it is deemed to significantly increase carbon pollution.

That's the kicker, Bob -- we know this pipeline clearly flunks the President's carbon pollution test and must be denied.

As LCV's president Gene Karpinski said at the vigil at the White House on Monday, "If President Obama wants to leave a strong climate legacy, he's gotta reject this pipeline!"

Today, the State Department opened its *last* public comment period on Keystone XL. **Until March 7th, people like you and me get to weigh in on this simple question: Is the Keystone XL tar sands pipeline in our national interest?**

The answer seems obvious -- at a minimum, you could say that Keystone XL is not in our national interest. To be totally blunt, this pipeline would be an absolute disaster for our planet!

But Big Oil has their lobbyists working overtime to downplay how much this pipeline would fuel climate change and put the health of our communities at risk.

So we must weigh in NOW about the risks this dirty pipeline would pose to our health, environment, and future.

Help us submit more comments opposing this pipeline than ever before. It's a chance to influence Secretary Kerry, so speak out before the March 7 deadline >>

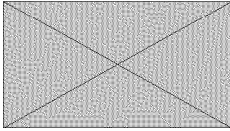
The Keystone XL pipeline carries a tremendous risk of devastating spills, right in our heartland. The pipeline would pump a torrent of toxic tar sands oil from Canada straight through the United States. It would endanger water supplies, destroy forests, and worsen climate change at an intolerable rate.

As a longtime climate change champion, Secretary John Kerry can set the record straight and help ensure that President Obama rejects this dangerous project.

But you can bet that Big Oil is knocking at Secretary Kerry's door -- so we have to speak out now if we want Secretary Kerry to use the real facts about the risks for our lands and our climate in his National Interest Determination.

[Send a message](#) to Secretary Kerry, before it's too late.

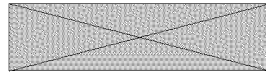
Thanks,



Vanessa Kritzer
Director of Digital Strategy
League of Conservation Voters.

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Washington, DC 20036
202-785-8683



[nonprofit software](#)

To: Mccarthy, Gina[McCarthy.Gina@epa.gov]
From: Environment America
Sent: Wed 2/12/2014 5:25:57 PM
Subject: Protect our waterways

Feb 12, 2014

Ms. Regina McCarthy
William Jefferson Clinton Federal Building, Room 3000
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

Dear Ms. McCarthy,

All our waterways should be clean enough to drink from, fish from and swim in without risk of pollution--from our local rivers and streams, to iconic waters like the Chesapeake Bay and the Great Lakes. Unfortunately, loopholes in the Clean Water Act have left many of our smaller waters unprotected, including those that feed and filter the drinking water for 117 million Americans.

It makes sense that pollution in streams and wetlands affects larger waterways downstream. Please move forward to protect our environment and our health by restoring Clean Water Act protections to all America's waterways, including all our streams and wetlands.

Consider the Keystone XL pipeline a hazard to our water supply.

Sincerely,

Ms. Jan Saslaw

Ex. 6 - Personal Privacy

To: Mccarthy, Gina[McCarthy.Gina@epa.gov]
From: Environment America
Sent: Sat 2/22/2014 6:15:51 AM
Subject: Protect our waterways

Feb 22, 2014

Ms. Regina McCarthy
William Jefferson Clinton Federal Building, Room 3000
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

Dear Ms. McCarthy,

All our waterways should be clean enough to drink from, fish from and swim in without risk of pollution--from our local rivers and streams, to iconic waters like the Chesapeake Bay and the Great Lakes. Unfortunately, loopholes in the Clean Water Act have left many of our smaller waters unprotected, including those that feed and filter the drinking water for 117 million Americans.

It makes sense that pollution in streams and wetlands affects larger waterways downstream. Please move forward to protect our environment and our health by restoring Clean Water Act protections to all America's waterways, including all our streams and wetlands.

Much of our water is already compromised. The aquafir in the Central part of the country will be at risk if the Keystone pipeline goes through!!!

Sincerely,

Ms. Joan Ripple

Ex. 6 - Personal Privacy

To: Mccarthy, Gina[McCarthy.Gina@epa.gov]
From: League of Conservation Voters
Sent: Sat 3/1/2014 4:29:15 PM
Subject: Finalize strong protections against toxic coal ash

Mar 1, 2014

Ms. Regina McCarthy
William Jefferson Clinton Federal Building, Room 3000
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

Dear Ms. McCarthy,

The recent spill of over 30,000 tons of toxic coal ash in North Carolina is a potent reminder of why we need strong regulations on the coal industry. As you finalize new coal ash protections, I urge you to make them as strong as possible.

In addition, we need MUCH STRONGER environmental protection in this country. We don't want any more oil spills, Three Mile Islands, tank spills, and definitely cannot let the Keystone Pipeline be built.

Right now, there are 45 coal ash storage centers in 27 locations across the country that have been deemed as a "high hazard potential rating" -- that means that if these structures fail and coal ash leaks, it is likely that people will die. We simply cannot afford to wait any longer to confront this danger.

We need stronger protections on how this toxic waste is stored if we don't want to see more communities end up like those in North Carolina who have been told to avoid water and fish from a river that used to be clean.

I urge you to finalize coal ash safeguards that will create meaningful standards on how to store this substance and hold the coal industry accountable when disasters do happen.

Sincerely,

Mr. Jim Zahakos

Ex. 6 - Personal Privacy

To: Mccarthy, Gina[McCarthy.Gina@epa.gov]
From: League of Conservation Voters
Sent: Sun 3/2/2014 11:31:45 PM
Subject: Finalize strong protections against toxic coal ash

Mar 2, 2014

Ms. Regina McCarthy
William Jefferson Clinton Federal Building, Room 3000
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

Dear Ms. McCarthy,

The recent spill of over 30,000 tons of toxic coal ash in North Carolina is a potent reminder of why we need strong regulations on the coal industry. As you finalize new coal ash protections, I urge you to make them as strong as possible.

Right now, there are 45 coal ash storage centers in 27 locations across the country that have been deemed as a "high hazard potential rating" -- that means that if these structures fail and coal ash leaks, it is likely that people will die. We simply cannot afford to wait any longer to confront this danger.

We need stronger protections on how this toxic waste is stored if we don't want to see more communities end up like those in North Carolina who have been told to avoid water and fish from a river that used to be clean.

I urge you to finalize coal ash safeguards that will create meaningful standards on how to store this substance and hold the coal industry accountable when disasters do happen.

Sincerely,

Mrs. Ruth Buhler

Reject the very risky tar sands Keystone XL pipeline, for future generations health.

Ex. 6 - Personal Privacy

To: Droitsch, Danielle[ddroitsch@nrdc.org]
Cc: Swift, Anthony[aswift@nrdc.org]; Casey-Lefkowitz, Susan[sclefkowitz@nrdc.org]
From: Droitsch, Danielle
Sent: Fri 3/7/2014 7:28:13 PM
Subject: EPA comments on Keystone XL Final EIS
[FINAL NRDC EPA Review of Keystone XL EIS Documents.pdf](#)

Hello,

NRDC has conducted a review of EPA's comments submitted in 2013 as well as from 2010 and 2011 against the Final Supplemental EIS released for Keystone XL. Our analysis attached. We are submitting them as part of our detailed comments to the State Department today and will be posting them publicly on Monday. Please do not hesitate to let me know if you have any questions or comments.

Best,

Danielle

Danielle Droitsch | Senior Attorney

Canada Project Director, International Program

Natural Resources Defense Council | www.NRDC.org

1152 15th St. NW, Suite 300 | Washington, DC 20005

phone: 202.513.6243 | cell: 202.413.0193 | email: ddroitsch@nrdc.org

Blog: <http://switchboard.nrdc.org/blogs/ddroitsch/>

Natural Resources Defense Council
March 7, 2014

The State Department's Final Environmental Impact Statement and Concerns Raised by the U.S. Environmental Protection Agency from 2010-2013 Regarding the Proposed Keystone XL Tar Sands Pipeline

Review of EPA comments submitted between 2010-2013

Since 2010, the EPA has raised a number of concerns about the proposed Keystone XL tar sands pipeline. In particular, EPA has focused its comments on the issues of whether the pipeline worsens climate change and whether it poses unnecessary risks to water and air quality. Now that the State Department's Bureau of Oceans and International Environmental and Scientific Affairs (OES) and its contractor ERM has released its Final Supplemental Environmental Impact Statement (FSEIS), the EPA has an opportunity to review whether its concerns have been adequately addressed. During review of its concerns, the EPA can also play a key role in the U.S. Department of State's (DOS) National Interest Determination (NID) process.

The EPA provided DOS with comments in 2010,¹ 2011,² and 2013.³ The analysis provided below outlines how core EPA concerns raised over the past three years remain unaddressed. In fact, many of the issues first raised by EPA in 2010 continue to persist in DOS's most recent January 2014 FSEIS. In order to highlight all of EPA's concerns and the ways DOS has either failed or insufficiently address them, this document will present EPA's view and DOS's response side-by-side. The analysis below indicates that the FSEIS has almost universally failed to address the concerns raised by the EPA and thereby fails to fully calculate the full extent of environmental and human impacts likely to be caused by the Keystone XL pipeline project.

In addition, the concerns EPA has raised over time are all relevant to the NID process. Concerns raised by EPA already support the argument that the proposed Keystone XL project is not only not in the national interest, but that it would be a significant driver of climate change and other negative environmental impacts. Among EPA's many concerns, its areas of focus can be summarized as falling under the following nine issues: (1) The project's purpose and need; (2) greenhouse gas emissions; (3) transport alternatives, especially rail; (4) the sufficiency of analysis of proposed alternatives; (5) pipeline safety; (6) refinery emissions and air quality impacts; (7) environmental justice and community impacts; (8) wetlands impacts; and (9) migratory bird impacts.

During the NID process, EPA should revisit some of their earlier comments and broadly evaluate the project against the Obama administration's climate and clean energy goals

¹ Letter from Cynthia Giles, Assistant Adm'r for Enforcement and Compliance Assurance, U.S. Env'tl. Prot. Agency to Jose W. Fernandez, Assistant Sec'y, Econ., Energy, and Bus. Affairs, U.S. Dept. of State (July 16, 2010) [available at](http://yosemite.epa.gov/oeca/webeis.nsf/(PDFView)/20100126/$file/20100126.PDF?OpenElement) [http://yosemite.epa.gov/oeca/webeis.nsf/\(PDFView\)/20100126/\\$file/20100126.PDF?OpenElement](http://yosemite.epa.gov/oeca/webeis.nsf/(PDFView)/20100126/$file/20100126.PDF?OpenElement).

² Letter from Cynthia Giles, Assistant Adm'r for Enforcement and Compliance Assurance, U.S. Env'tl. Prot. Agency to Jose W. Fernandez, Assistant Sec'y, Econ., Energy, and Bus. Affairs, U.S. Dept. of State (June 6, 2011), [available at](http://yosemite.epa.gov/oeca/webeis.nsf/(PDFView)/20110125/$file/20110125.PDF) [http://yosemite.epa.gov/oeca/webeis.nsf/\(PDFView\)/20110125/\\$file/20110125.PDF](http://yosemite.epa.gov/oeca/webeis.nsf/(PDFView)/20110125/$file/20110125.PDF).

³ Letter from Cynthia Giles, Assistant Adm'r for Enforcement and Compliance Assurance, U.S. Env'tl. Prot. Agency to Jose W. Fernandez, Assistant Sec'y, Econ., Energy, and Bus. Affairs, U.S. Dept. of State (April 22, 2013), [available at](http://www.epa.gov/Compliance/nepa/keystone-xl-project-epa-comment-letter-20130056.pdf) <http://www.epa.gov/Compliance/nepa/keystone-xl-project-epa-comment-letter-20130056.pdf>.

- In their July 2010 comments, EPA stated: “[W]e believe the national security implications of expanding the Nation’s long-term commitment to a relatively high carbon source of oil should also be considered.” Therefore, the NID should evaluate whether the U.S. should permit a 50-year infrastructure project that amounts to a long term commitment to producing, refining, and selling a fossil fuel with higher than average concentrations of carbon.

EPA has also stated in the same comments that “[t]he Draft EIS uses an unduly narrow purpose and need statement . . . [that fails] to allow for a robust analysis of options for meeting national energy and climate policy objectives.” Therefore, the NID should focus on whether the U.S. should pursue a project focused only on meeting Gulf Coast refinery needs instead of a project focused on national clean energy and climate policy objectives.

- EPA has raised concerns about greater risks posed by the transport of diluted bitumen versus conventional oil. Therefore the NID must evaluate the growing evidence that spills from diluted bitumen could have a very significant impact to water supplies and whether the U.S. should permit a project which transports a highly hazardous substance across critical national resources and through vulnerable communities, placing water, agricultural, scenic, and human resources at significant risk.
- EPA has raised concerns about the project’s disproportionately high and adverse human health and environmental effects on minority, low-income, and Tribal populations. The NID process should evaluate the growing and considerable evidence that the project will pose greater air pollution risks to communities near Port Arthur Texas as well as water contamination risks to communities along the pipeline route (including tribal nations relying on water supplies).
- Finally, there is growing evidence that production, transport, and refining has been tied to significant negative human health effects. Therefore, the NID should evaluate these heightened risks to the public to ensure that these negative effects are fully understood and fully disclosed

Climate Impacts/Market Analysis

EPA Concern	DOS Response
July 2010: EPA recommended full disclosure “of GHG emissions . . . [including] an estimate of the extraction-related GHG emissions associated with long-term importation of large quantities of oil sands crude from a dedicated source.”	While the FSEIS confirms that tar sands development is substantially more carbon intensive than conventional oil, it failed to find that Keystone XL would have any impact on climate change—a faulty conclusion as stated below. FSEIS, Table 4.14-3; 4.14-30-33; 4.14-5.
July 2010, June 2011: EPA recommended a consideration of project alternatives that reduced capacity, mitigated operational releases, or reduced “extraction-related GHG emissions.”	The FSEIS has not addressed the EPA’s concern. DOS has never considered an alternative that would reduce the size of the project, mitigate operational releases or offered any strategies for reducing extraction-related GHG emissions. While DOS estimates that emissions from operations of the pipeline total 1.44 million metric tons/year, DOS has not addressed EPA’s recommendation to

<p>June 2011: EPA strongly recommended “against comparing GHG emissions associated with a single project to global GHG emissions levels” because of the way such a comparison makes any project, regardless of its scale, appear to be a small addition to worldwide GHG emissions.</p> <p>June 2011: EPA recommended that DOS provide a lifetime analysis of GHG emissions, as those emissions become quite significant over the 50 year lifespan of the project.</p> <p>June 2011, April 2013: EPA requested that DOS contextualize the well-to-wheel GHG intensity differences between conventional and tar sands crudes and provide “monetized estimates of the social cost.”</p>	<p>find ways that TransCanada might mitigate these impacts beyond utilizing whatever new technology is available to construct and run the pipeline. FSEIS, Table 4.142. For example, TransCanada’s “Construction, Mitigation, and Reclamation Plan” does not address GHG emissions at all. FSEIS, Appendix G.</p> <p>The EPA’s recommendation has been ignored. The FSEIS discussion of U.S. and Canadian contributions to total worldwide GHG emissions downplays the impact of GHG emissions associated with this project. FSEIS, Executive Summary, 17; 4.14-46.</p> <p>The FEIS found that the Keystone XL project could contribute 1.43 billion “accumulated incremental” tons of GHG emissions to the atmosphere over 50 years. FSEIS, Table 4.148. However, DOS failed to provide any contextualizing analysis to make it clear just how negative the climate impacts of the Keystone XL project actually are. A simple piece of analysis DOS could have provided would have compared Keystone XL’s lifetime emissions to the Intergovernmental Panel on Climate Change’s (IPCC) “carbon budget.” Because Keystone XL will use a portion of the IPCC’s carbon budget, the project’s impact on international climate goals is easily contextualized. Using this methodology, Keystone XL’s carbon emissions over 50 years (without reference to displacement, etc.) = 7.35 8.4 billion metric tons CO₂e / 469 billion metric tons available CO₂e. This represents 1.6%- 1.8% of the total remaining IPCC budget.</p> <p>DOS failed to address the EPA request to monetize the social costs of cumulative GHG emission effects. However, based on costs provided by the Interagency Working Group of Social Costs of Carbon and using DOS estimates, Keystone XL would have a social cost as high as \$128 billion in 2014 dollars.⁴</p>
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⁴ In 2007 dollars, the social cost of Keystone XL’s incremental 1.4 billion metric ton carbon impact is between \$80.6 billion and \$114 billion using the administration’s SCC figures as a discount rate of 2.5% to 3%. Adjusting to 2014 dollars, that figure rises to between \$90 billion to \$128 billion. Interagency Working Group on Social Cost of Carbon, U.S. Government, Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (May, 2013) (www.whitehouse.gov/sites/default/files/omb/inforeg/social_cost_of_carbon_for_ria_2013_update.pdf) (all dollar

<p>April 2013: EPA recommended that DOS analyze ways that the U.S. might support Canada in its efforts to mitigate GHG emissions from tar sands production. EPA also stated that DOS should determine if specific commitments from TransCanada for mitigating operational emissions were appropriate.</p>	<p>The FSEIS failed to address this EPA concern. DOS discusses Alberta's inadequate efforts to reduce GHG emissions (including "improving operations," use of carbon offsets, payment into an "Emissions Management Fund," and use of carbon credits), but failed to conduct any independent analysis that would have revealed that these policies have been completely ineffective to date.⁵ In DOS's response to EPA's recommendation that the U.S. work with Alberta to consider strategies for reducing GHG emissions, DOS states that these types of policy decisions are outside the scope of its analysis. FSEIS, Response to Public Comments, Part 1, PC-7.</p> <p>While DOS does note that TransCanada plans to use highly efficient equipment in the operation of the pipeline, it does not specifically require use of renewables or suggest any additional ways to mitigate emissions (DOS simply states that power supply will be determined by local energy cooperatives). FSEIS, 4.14.18.</p>
<p>April 2013: EPA recommended that DOS pay significant attention to its market analysis to ensure that it was using the most up-to-date data. Because EPA views DOS's market analysis as the heart of its DSEIS and particularly the climate impacts of the pipeline, EPA felt "that the Final EIS [must] provide a more careful review of the market analysis and rail transport options . . . [which should] include further investigation of rail capacity and costs."</p>	<p>The FSEIS market analysis fails to address EPA concerns. DOS continues to construct a preferred reference scenario to reach its overall conclusion that tar sands production will not be significantly impacted by approval or denial of the Keystone XL pipeline and thus not have a significant impact on GHG emissions. To reach its conclusion, DOS makes the following assumptions: (1) that tar sands crude prices will gradually increase through at least 2035; (2) that tar sands will directly replace imports of other high carbon feedstocks in refineries at the Gulf Coast; (3) that differences in transport costs between pipeline, rail, and other methods are not significant enough to slow production; (4) that there is a strong possibility of future expanded pipeline capacity; and (5) that alternate transport methods are viable (i.e., have sufficient capacity) replacements for Keystone XL should the pipeline permit be denied. For DOS's</p>

amounts in 2007\$); Bureau of Labor Statistics, Inflation Calculator, Accessed February 28, 2014, http://www.bls.gov/data/inflation_calculator.htm).

⁵ See P.J. Partington & Clare Demerse, Pembina Inst., Context for Climate Action in Canada (Oct. 2013), <file:///Users/joshaxel/Downloads/climate-context-20131009.pdf>; Simon Dyer, Pembina Inst., Strengthening Alberta's Greenhouse Gas Regulations (April 2013), <file:///Users/joshaxel/Downloads/ab-sger-briefing-apr2013.pdf>.

	<p>final conclusion regarding climate impacts to be correct, each of these assumptions must be true and there is sufficient information contained in the FSEIS to significantly undermine the strength of all of these assumptions.</p> <p>In essence, the FSEIS has failed to address EPA concerns by failing to conduct a careful review of market conditions:</p> <ul style="list-style-type: none"> • The FSEIS uses global energy consumption models which assume business as usual policies through 2035 that lead to higher oil consumption, higher oil prices, and carbon emissions that lead to 6 degrees Celsius of climate warming. IEA scenarios that model energy consumption if the international community limits warming to 2 degrees Celsius (the 450 ppm scenario) or if nations simply honor their existing climate commitments (the New Policy scenario) both forecast markedly lower oil prices due to declining consumption. In either market, tar sands expansion will be far more marginal and dependent on cheap transportation capacity provided by the Keystone XL pipeline. • The FSEIS assumes that even if pending pipelines are approved and oil prices increase, tar sands expansion will occur at half the pace it did over the last decade and little more than a third the pace projected by the Canadian Association of Petroleum Producers (CAPP). The FSEIS forecast is lower than those of industry, the National Energy Board, the International Energy Agency, the Energy Information Administration, and the Government of Alberta. By assuming "slow tar sands expansion" the FSEIS creates a falsely plausible scenario where other transport alternatives could fill the transport gap if Keystone XL is not approved. The effect of this erroneous logic is a significant underestimation of Keystone XL's impact on tar sands expansion. • The FSEIS did not consider proposed tar sands mining projects that are high cost, unable to profitably utilize rail, and dependent on Keystone XL. • The FSEIS concluded that tar sands development is less expensive than what is
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	<p>actually occurring on the ground. Less expensive projects cantake advantage of higher cost rail, but these low cost projects are not the industry norm.</p> <ul style="list-style-type: none"> • The FSEIS concluded oil prices will increase (making tar sand projects more profitable). However, the IEA and commodity futures markets both project lower oil prices through at least 2020. • The FSEIS wrongly assumed there would be sufficient pipeline or rail capacity to facilitate tar sands expansion regardless of Keystone XL when, in fact, pipeline bottlenecks have already limited investment in tar sands expansion. • The FSEIS failed to consider the impact of new rail regulations on the comparative cost of rail relative to Keystone XL.
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Consideration of Alternatives

EPA Concern	DOS Response
<p>July 2010: “[T]he Draft EIS does not fully analyze the environmental impacts of the no-action and other alternatives, making a comparison between alternatives and the proposed project more difficult.”</p>	<p>The FSEIS failed to address this issue. The FSEIS did not fully analyze its status quo alternative which assumes Keystone XL is not built and other transport options do not take its place. FSEIS, 5.1-6. Instead, DOS chose to develop three independent no-action alternatives (pipeline/rail; pipeline/barge; and rail only) making it appear that all no-action alternatives have similar or worse environmental impacts than the proposed project. FSEIS 5.1; FSEIS 5.3-2, 5, 8. The effect of this flawed analytical strategy makes the proposed project appear to be the most environmentally desirable course of action.</p>
<p>July 2011, April 2013: DOS should more clearly explain why it rejected alternatives that avoid the Ogallala aquifer, while the proposed route does not. “[T]he DSEIS does not provide a detailed analysis of the . . . Alternative routes, which would . . . likely further reduce potential environmental impacts to groundwater resources . . . [and which] were determined to not be reasonable alternatives</p>	<p>The FSEIS comparison of alternatives does little to distinguish among the proposed alternatives and does not provide any rationale for preferring the proposed route as opposed to either the Steele City or I-90 Corridor routes. Compare DSEIS, 5.2 with FSEIS, 5.2. Indeed, the latest preferred Keystone XL route was only shifted 19 miles from the original proposal⁶ and still crosses extremely</p>

⁶ Nebraska Judge Voids Governor’s Right to Set Keystone XL Route, Env’t. New Serv. (Feb. 21, 2014), <http://enr.com/news/2014/02/21/nebraska-judge-voids-governors-right-to-set-keystone-xl-route/>.

primarily on the basis that these routes are longer than the proposed Project's route."	<p>sensitive portions of the Ogallala Aquifer and Nebraska's Sandhills.⁷</p> <p>Per DOS's various statistics regarding each route, the I-90 Corridor route appears to be significantly less impactful, despite its longer length. The I-90 Corridor also avoids the habitat of the American burying beetle, a federally listed threatened species. Though DOS's response to EPA's recommendation suggest that increased risk of spills and increased proximity to water bodies were key factors in its alternatives analysis, DOS's primary focus continues to be on the additional length of each alternative. FSEIS, Summary of Public Comments, Part 1, PG14.</p>
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Pipeline Safety and Spill Response

EPA Concern	DOS Response
<p>July 2010, June 2011, April 2013: The EPA requested that DOS provide more information about the chemical characteristics of diluted bitumen, as these characteristics are critical for determining impacts and appropriate spill responses. In particular, EPA felt that current DOS analysis was missing information that would help to determine the acute toxicity of transported crude oil. EPA recommended that DOS especially consider the difference between diluted bitumen and conventional crude spilling in water.</p>	<p>The FSEIS failed to address this request from EPA. On the one hand, the FSEIS finally acknowledges that tar sands crudes present unique risks to water. DOS notes that diluted bitumen spilled into water results in the rapid volatilization of the diluting agents, leaving the heavy bitumen behind, which then sinks. DOS also acknowledged that, unlike conventional crudes, bitumen does not readily biodegrade if accidentally released into water (and generally). FSEIS, 3.1310. But despite EPA's specific request for more information about the chemical characteristics of diluted bitumen, the FSEIS failed to provide the needed information mentioned by EPA.⁸ These findings appear to fly in the face of EPA's experience with cleanup following spills in both Michigan and Arkansas.</p>
<p>July 2010, June 2011: EPA recommended that DOS's analysis should have considered a wider scope in its definition of serious/significant spills to assess risk. EPA also recommended that DOS address the risk of spills from "pipeline-related" infrastructure and activity.</p>	<p>The FSEIS failed to address these EPA concerns. While DOS has acknowledged that spills could originate from any number of sources (including the pipeline, pump stations, valves, delivery points, etc.), FSEIS, 3.13-25, it has never conducted a proper analysis of reasonably foreseeable spills or other accidents. Indeed, in the FSEIS, it states</p>

⁷ Mark Hefflinger, Nebraska Landowners Purchase Anti-Keystone XL Radio Ads, Bold Nebraska (Feb. 18, 2014), <http://boldnebraska.org/kxlradio>.

⁸ See Exponent, Inc., Third-Party Consultant Environmental Review of the TransCanada Keystone XL Pipeline Risk Assessment ix (April 26, 2013), available at <http://keystonepipeline-xl.state.gov/documents/organization/221278.pdf> (recommending that "obtaining additional information on the chemistry of the oils" is necessary to fully analyze the risk of a spill).

<p>July 2010, June 2011: EPA recommended that DOS provide more information in relation to how small pipeline leaks will be detected and the time frame within which such leaks will be detected and controlled. EPA also found that more information was needed regarding actual patrols and visual inspections of the pipeline.</p> <p>July 2010: EPA recommended that DOS require TransCanada to provide a draft Emergency Response Plan, tailored to the project.</p> <p>July 2010, June 2011: EPA recommended that DOS provide more information on measures that will be implemented to reduce the risk of spills in high consequence areas (HCAs). EPA recommended that DOS consider requiring external pipe leak detection systems in these areas to improve the probability of detecting small leaks.</p> <p>April 2013: The EPA recommended that DOS “provide an opportunity for public review and comment on the scope of [an independent engineering analysis of TransCanada’s risk assessment], and an opportunity for public comment on a draft of the analysis when it is completed.”</p>	<p>that such an analysis need not be undertaken until after the permitting process has begun. FSEIS, 3.13-4.</p> <p>TransCanada plans to install a SCADA system that will only be able to detect leaks larger than 1.52% of total flow rate. FSEIS, 3.1334. Assuming a 15% flow rate leak, as many as 12,450 bbd, or 522,900 gallons, could leak without the SCADA system noting the problem. This creates the possibility of a “small” leak going undetected for a lengthy period of time and resulting in a major spill.</p> <p>This EPA concern was not addressed. The same, generic Emergency Response Plan, developed in 2009, continues to be appended to the FSEIS. FSEIS, Appendix I.</p> <p>This EPA concern was not fully addressed. While the FSEIS contains some additional strategies, see FSEIS, 3.13-28, it did not specifically propose any additional external leak detection systems.</p> <p>While the FSEIS contained an engineering and environmental review of TransCanada’s risk analysis, none of these studies were provided to the public for review and comment. It is also unclear whether EPA provided guidance/feedback on these studies.</p> <p>The independent engineering study made the following key observations about TransCanada’s risk assessment:</p> <ul style="list-style-type: none"> • TransCanada’s potential spill volume sizes were “an order of magnitude too small” given their inappropriate use of available data. Battelle, Executive Summary, 3. • A median spill volume of 100 barrels should be used for planning purposes. ES, 3. • TransCanada should provide a basis for its assumption that engineering changes will result in lower failure frequencies. ES, 3. • TransCanada’s risk assessment “does not meet one of the key objectives of a risk assessment program: identifying the major sources of risk,
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<p>April 2013: EPA recommended the imposition of four additional permit conditions. These include (1) requiring emergency response plans that address submerged oil, floating oil, and cold weather responses; (2) requiring pre-positioned response equipment, including equipment capable of dealing with submerged oil; (3) requiring drills and exercises that include dealing with floating and submerged oil; and (4) requiring that any response plan be reviewed by the EPA.</p>	<p>and then identifying the components and/or procedures that can mitigate those risks.” ES, 5.</p> <ul style="list-style-type: none"> • TransCanada should not have relied on PHMSA’s database as the sole source of failure causes and consequences. ES, 5. • Modeling of valve placement should be redone to ensure that any changes in route do not result in significant changes in proposed placements. ES, 7. • Analysis by Exponent found that spills into surface waters can move beyond the 5 mile distance that TransCanada used to identify HCAs and other sensitive areas. ES, 8. • Computational pipeline monitoring (i.e., the SCADA system) is not sufficient where large volumes of oil are transported through a pipeline because of the risk of a major spill due to the system’s inability to recognize leaks below certain transport volume percentages. ES, 9. • TransCanada failed to provide enough detail to show that valves were spaced so as to minimize the total spill volume as required by U.S. regulations. ES, 12. <p>While it may be premature to determine whether this EPA request has been honored (because the permit has not been issued), the information that would lead to the creation of these conditions remains outstanding. The FSEIS only states that TransCanada has promised to address some key issues such as spill response exercises that address floating and submerged oil (FSEIS, 4.13-100, 111) and use of equipment necessary for dealing with accidental releases into water (FSEIS, 4.13-112).</p>
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Air Quality Impacts from Refinery Emissions

EPA Concern	DOS Response
<p>July 2010, June 2011: “We . . . agree with the Draft EIS’s conclusion that there may be increases in air emissions from refineries in the area, and we recommend” that DOS “substantiate the conclusion that these increases ‘would likely not be major.’”</p>	<p>This EPA concern has not been addressed. DOS has done little to update its analysis of refinery emissions and the effect that refining tar sands crudes would actually have on emissions. In essence, DOS’s analysis suggests that though tar sands crudes have higher sulfur, metal, and VOC content, none of these will contribute to increased</p>

	air emissions because tar sands crudes will displace high sulfur heavy crudes as well as high VOC lighter crudes. DOS has not substantiated this “displacement” assumption, which contradicts the FSEIS’s conclusion that there may be increases in air emissions. DOS has also failed to substantiate its conclusion that any increases in air emissions would be minor, as requested by EPA.
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Community and Environmental Justice Impacts

EPA Concern	DOS Response
July 2010, June 2011: “[T]he Draft EIS does not fully identify and address the potential for disproportionately high and adverse human health and environmental effects on minority, low income and Tribal populations” because DOS’s definitions of these populations “underestimated the extent of these . . . populations in the project area.”	This EPA concern was not addressed. DOS’s discussion of impacts on environmental justice communities fails to address EPA’s underlying question of whether the proposed project will have “disproportionately high and adverse human health and environmental effects” on these communities. In fact, there are major environmental justice concerns related to increased air pollution in refinery communities, the risks of a spill anywhere along the pipeline’s route (including drinking water impacts), and inadequate access to health care facilities along much of the pipeline’s route.

Wetland Impacts

EPA Concern	DOS Response
July 2010, June 2011: DOS should have provided analysis of the complete range of impacts to wetlands that are likely to arise during construction, operation, and maintenance of the project. The EIS documents should explain how these impacts will be avoided or minimized. For Army Corps permitting in relation to affected wetlands, DOS should consolidate all wetlands crossing into a single permit to increase transparency regarding overall project impacts.	This EPA concern was not addressed. The evaluation of impacts remains solely lacking and aside from a listing of relevant regulations and laws, there is no explanation of how impacts will be avoided or minimized. While the FSEIS includes more information about wetland impacts, FSEIS, 4.4, it fails to explain how impacts will be minimized and/or mitigated. Rather than address the issue in the FSEIS, DOS only provides a list of federal, state, and local regulations with which TransCanada must comply. FSEIS, 4.419. Finally, there is no evidence that DOS has consolidated all wetlands crossings into a single Army Corp permit.

Migratory Bird Impacts

EPA Concern	DOS Response
July 2010, June 2011: Given that as many as “30% of North American landbirds breed in the boreal forests of Canada and Alaska,” DOS should have	This EPA concern has not been addressed. DOS has provided information about applicable Canadian laws and regulations in reference to

<p>provided analysis regarding how tar sands extraction activities are likely to affect these populations. In addition to discussing protections in place to help preserve these populations, DOS should also have discussed how mitigation of impacts to already vulnerable species will take place.</p>	<p>migratory birds, as well as information about observed and anticipated effects on migratory birds. FSEIS, 4.15-104 (and onward). However, nowhere does DOS discuss the effectiveness of these laws or regulations, which are easily pushed aside to accommodate tar sands development interests even when wildlife impacts are acknowledged and can be avoided. Indeed, many of the effects noted in the FSEIS suggest serious negative impacts to migratory bird populations due to tar sands extraction activities. While mitigation measures are suggested, these seem unrealistic given the pace of development and massive plans for expansion.</p>
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To: Mccarthy, Gina[McCarthy.Gina@epa.gov]
From: Environment America
Sent: Wed 3/26/2014 12:44:43 PM
Subject: Protect our waterways

Mar 26, 2014

Ms. Regina McCarthy
William Jefferson Clinton Federal Building, Room 3000
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

Dear Ms. McCarthy,

All our waterways should be clean enough to drink from, fish from and swim in without risk of pollution -- from our local rivers and streams, to iconic waters like the Chesapeake Bay and the Great Lakes. Unfortunately, loopholes in the Clean Water Act have left many of our smaller waters unprotected, including those that feed and filter the drinking water for 117 million Americans.

Thank you for taking a major step forward to restore Clean Water Act protections to America's streams and wetlands and for your commitment to protecting our waterways.
Stop KEYSTONE!

Please move forward as quickly as possible to finalize a strong rule that will restore Clean Water Act protections to all America's waterways and protect our environment and health.

Sincerely,

Mr. Jerry Brown

Ex. 6 - Personal Privacy

To: Mccarthy, Gina[McCarthy.Gina@epa.gov]; Carter-Jenkins, Shakeba[Carter-Jenkins.Shakeba@epa.gov]; scheduling[scheduling@epa.gov]; Bednar, Georgia[bednar.georgia@epa.gov]; Craig, Beth[Craig.Beth@epa.gov]; Hengst, Benjamin[Hengst.Benjamin@epa.gov]; Shelby, Michael[Shelby.Michael@epa.gov]; Dunham, Sarah[Dunham.Sarah@epa.gov]; Levy, Aaron[Levy.Aaron@epa.gov]; Ganesan, Arvin[Ganesan.Arvin@epa.gov]; Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]; Bromm, Susan[Bromm.Susan@epa.gov]; Rader, Cliff[Rader.Cliff@epa.gov]; Garcia, Lisa[Garcia.Lisa@epa.gov]; Gogal, Danny[Gogal.Danny@epa.gov]; Ruhl, Suzi[Ruhl.Suzi@epa.gov]; Chester, Steven[Chester.Steven@epa.gov]; Group Oiainternet-Comments[Oiainternet-Comments@epa.gov]; Barron, Alex[Barron.Alex@epa.gov]; Fraser, Scott[Fraser.Scott@epa.gov]; Reaves, Doretta[Reaves.Doretta@epa.gov]; dagnew@who.eop.gov[dagnew@who.eop.gov]

From: Swift, Anthony

Sent: Thur 4/3/2014 4:51:32 PM

Subject: Business leaders call for rejection of Keystone XL and other updates

Greetings,

I wanted to make sure you were aware of a [letter](#) signed by over 200 business leaders - including executives at Apple, Oracle, Facebook, and Google – [calling for Secretary Kerry to reject the Keystone XL tar sands pipeline](#). The letter, signed by 227 members of E2, a “non-partisan, national community of business leaders who promote strong environmental policy to grow the economy”, emphasized the economic impacts and social cost of climate change, as well as the negligible benefit the project would bring to the United States economy. [Anthony Bernhardt, the Northern California director of E2, told Bloomberg Businessweek](#). “Even beyond our group, I’d say it’s a consensus among tech leaders that developing the tar sands will not benefit our economy—and on the contrary, increase the risk of real harm,” Bob Fisher, the chairman of Gap, who also signed on to the letter, added that the risk brought on by rising sea levels and extreme weather events is already threatening businesses, and “I don’t see increasing the risk of that for about the same number of jobs it takes to build and run a medium-sized mall.”

Earlier this week, the *New York Times* ran an important op-ed (“[Is Canada Tarring Itself?](#)”) highlighting the fact that by prioritizing tar sands expansion, Canada has deserted its role as a reliable partner on combating climate change. Canada is currently on track to miss its climate commitments by a substantial margin, [primarily because of its rapidly expanding tar sands sector](#). Despite this, [Canada has no credible means](#) of mitigating its increasing carbon emissions.

I also wanted to make sure you were aware of two studies released in the past week by the Alberta government drawing attention to the linkage between tar sands development and significant health concerns, discussed in the blog “[Mounting evidence of health concerns near tar sands development](#).”

Finally, we address the argument that Keystone XL has a role in the Ukraine debate.

If you have any questions, please let me know.

Best,

Anthony Swift | Staff Attorney, International Program

Natural Resources Defense Council | www.NRDC.org

1152 15th St. NW, Suite 300 | Washington, DC 20005

phone: 202.513.6276 | cell: 215.478.4967 |

Blog: <http://switchboard.nrdc.org/blogs/aswift/>

To: Swift, Anthony[aswift@nrdc.org]
From: Swift, Anthony
Sent: Thur 4/10/2014 3:04:25 PM
Subject: Over 100 scientist and economist urge rejection of Keystone XL & other updates

Greetings,

We wanted to be sure that you were aware of a letter signed by more than 100 scientists and economists calling on President Obama and Secretary John Kerry to reject the Keystone XL tar sands pipeline. The signatories included Nobel Prize winners in physics and economics, lead authors of the United Nations Intergovernmental Panel on Climate Change reports, and other noted scientists and economists. They added their voices to the 2 million public comments sent to President Obama and Secretary Kerry calling for a rejection of Keystone XL, and to the more than 200 business voices whose letter to Secretary Kerry calling for rejection of Keystone XL was released last week.

Recent news reports are highlighting the role that Keystone XL would play as a linchpin for expanded tar sands production and the significant carbon emissions associated with it. In the *Financial Post* article "Oil sands investment slowing because of tough market, not new SOE rules," tar sands producers acknowledged that capital costs have recently tripled, operating costs have doubled, and continued delays in pipeline approvals are preventing them from maximizing revenues and creating a poor climate for expansion.

According to another *Financial Post* article, investors agree that approval of the pipeline would open up expanded development of the carbon-heavy fuel by "[improving] the economics of getting their heavy oil down to the refineries that need it in the Houston area." The article goes on to state that many investors are staying on the sidelines and believe that Keystone XL delays are constraining the development of the tar sands in Canada.

In addition, the pipeline company Enbridge recently received a license to export tar sands from Texas ports internationally. As proposals to build pipelines through Canada remain blocked due to public opposition, this highlights Keystone XL's role as an export pipeline through the United States on its way to international markets. This possibility was first identified by petroleum economist Phillip Verleger in 2011, who contended the export market fueled by Keystone XL could cost American consumers \$5 billion annually.

Meanwhile Presente.org, the nation's largest online Latino organizing group, announced its opposition to the Keystone XL tar sands pipeline, noting that Latino communities are in areas most affected by climate change and the refinery pollution associated with Keystone XL.

Best,

Anthony Swift | Attorney, International Program

Natural Resources Defense Council | www.NRDC.org

1152 15th St. NW, Suite 300 | Washington, DC 20005

phone: 202.513.6276 | cell: 215.478.4967 |

Blog: <http://switchboard.nrdc.org/blogs/aswift/>

To: Swift, Anthony[aswift@nrdc.org]
From: Swift, Anthony
Sent: Mon 6/30/2014 4:06:30 PM
Subject: Keystone XL: Experts call for moratorium on tar sands expansion / tar sands projects canceled due to pipeline constraints

Greetings,

We wanted to be sure that you were aware of [a recent opinion article in *Nature*](#) magazine by eight leading scientists and economists in Canada calling for a moratorium on tar sands expansion and arguing that the process for and the process to consider them is broken. They cite a decision-making system in both countries that ignores how pipelines will collectively present major global impacts to climate, water, and local communities. Rather than only looking individual pipeline proposals, the experts argue governments should consider how new pipelines collectively will facilitate a major expansion of the tar sands industry and associated climate emissions. The authors highlighted the need for a bilateral discussion between the U.S. and Canada about the cumulative effect of these pipelines in the context of their international climate commitments.

Meanwhile a [series of recent industry announcements](#) is pouring cold water on the argument that tar sands development will happen at the same pace and scale without major tar sands infrastructure projects like Keystone XL. In recent months, two major tar sands mines have been canceled, the Canadian Association of Petroleum Producers (CAPP) have substantially reduced their forecasted rates of tar sands expansion, and rising costs have caused an investor exodus for a number of proposed projects. Even as increasing breakeven costs push tar sands expansion projects beyond the realm of economic viability, tar sands by rail to the Gulf Coast continues to prove to be more expensive than predicted. Industry's forecasts acknowledges that its tar sands expansion plans cannot be realized unless it gets all of the major proposed tar sands pipelines it currently proposes as well as an expansion of rail infrastructure.

Finally, [Businessweek recently reported](#) that pipeline regulators at the Pipeline and Hazardous Materials Safety Administration (PHMSA) found a systemic problem with substandard welds on TransCanada's Gulf Coast pipeline, noting that over 70% of welds on one week were flawed.

Best,

Anthony Swift | Attorney, International Program

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Blog: <http://switchboard.nrdc.org/blogs/aswift/>

From: Dan Weiss
Sent: Fri 9/5/2014 3:29:29 PM
Subject: ICYMI: Environmentalists Campaigning Spending to See Huge Jump this Year

Daniel J. Weiss

Senior Vice President for Campaigns

League of Conservation Voters

202-454-4570 O

202-390-1807 M

Dan_Weiss@lcv.org

Twitter: @DanJWeiss

http://www.washingtonpost.com/politics/environmentalists-campaign-spending-on-midterms-to-see-huge-jump-this-year/2014/09/05/f579b39c-346c-11e4-8f02-03c644b2d7d0_story.html

Washington Post

Politics

Environmentalists' campaign spending on midterms to see huge jump this year

By Juliet Eilperin September 5 at 10:34 AM

The League of Conservation Voters will spend \$25 million in campaign funding this election season, a fivefold increase over what the group devoted to the last midterm elections, LCV President Gene Karpinski said in an interview.

The spending will be largely devoted to key Senate races but will also go to a handful of gubernatorial and state legislative contests. The increased funding reflects the growing role of environmentalists as political money players. Climate activist and billionaire Tom Steyer has already spent \$22 million on federal and state candidates this election cycle and plans to devote at least \$26 million more. Steyer is a major LCV funder.

“We are poised to make, by far, the biggest investment we’ve ever made in elections,” Karpinski said in an interview, adding that the group’s efforts are “making climate change part of the conversation” in races across the country.

The group has ramped up its spending in recent years, rising from \$5 million in 2010 to \$15 million in 2012. It has also joined with another major environmental group, the Natural Resources Defense Council Action Fund PAC, to run the GiveGreen program, that has raised or contributed \$4 million so far this election cycle to individual federal candidates.

The Environmental Defense Action Fund, which has traditionally only given money directly to candidates, has already spent more than a million dollars in federal and state races in Colorado, Iowa, Kansas, Michigan and New York this year.

FTI Consulting senior director Matt Dempsey, whose clients include several fossil fuel industry interests, questioned whether green groups would be able to sway voters.

“Anti-fossil fuel groups, no matter how much money they spend, face an uphill battle at the ballot box because they simply cannot explain to the public how they plan to meet energy needs without fossil fuels, both now and in the future,” Dempsey wrote in an e-mail.

Dempsey noted that several of the Senate Democrats up for reelection, including Mark Begich (Alaska), Kay Hagan (N.C.) and Mary Landrieu (La.), support the Keystone XL pipeline, which most national environmental groups oppose. LCV is backing Begich and Hagan, as well as Mark Udall (Colo), who describes himself as “a champion of Colorado’s natural gas industry”; the three incumbents support mandatory federal limits on greenhouse gas emissions linked to climate change.

Environmentalists’ deeper involvement in both state and federal campaigns represents, to a large extent, a recognition that legislation curbing greenhouse gas emissions on a broad scale will remain out of reach for years without a major political shift in Washington and state capitals.

Elizabeth Thompson, Environmental Defense Action Fund’s president, said in a statement that her organization is “making a major investment to build a bipartisan movement for environmental progress. . . . It won’t be easy or quick, but we’re convinced that solving the biggest challenges will require both parties at the table. Our goal is to show both sides that good climate policy is smart politics.”

The races LCV is targeting — including Senate contests in Alaska, Colorado, Iowa, Michigan, New Hampshire and North Carolina, as well as the Maine gubernatorial race, where it is opposing Gov. Paul LePage’s (R) reelection, and state legislative races in Oregon and Washington — all involve significant contrasts between the two candidates on climate change and other signature environmental issues.

It has endorsed just four Republicans this cycle — Sen. Susan Collins (Maine) and three state legislators, all of whom faced primaries. It also intervened in two Democratic primaries, successfully backing Sen. Brian Schatz (Hawaii) and Maine state Sen. Emily Cain, who is trying to succeed Rep. Michael H. Michaud (D).

The issue of climate change has come up in several of these races already, such as when former Sen. Scott Brown (R-Mass.), who is now challenging Sen. Jeanne Shaheen (D-N.H.), responded to a question of whether “the theory of man-made climate change has been scientifically proven” during a GOP primary debate by saying, “Uh, no.”

Brown spokeswoman Elizabeth Guyton said in a statement that he “believes that the climate is changing by a combination of natural and man-made causes.”

“The real issue is whether we are going to impose a new national energy tax on carbon. Scott Brown says no and Jeanne Shaheen says yes,” she added.

Steyer’s NextGen Climate Action Committee — which is giving money to not just environmental organizations but labor, abortion rights, veterans and Latino groups — “will be a seven figure supporter of our work in 2014,” Karpinski said. The committee has donated \$650,000 to LCV’s super PAC this election cycle, which was spent on various races including Sen. Ed Markey’s (Mass.) special election.

“There’s not a day that goes by that someone on our team doesn’t talk to someone on the Steyer team,” Karpinski said.

NextGen Climate Action spokesman Bobby Whithorne wrote in an e-mail that his group is canvassing with LCV “in several states and supporting their efforts on the ground in numerous races. We look forward to working together over the next eight weeks to bring climate change to the ballot box.”

The spike in spending by environmental activists has already sparked a response from groups aligned with industry and the GOP. The conservative Super PAC, American Commitment Action Fund, has already run an ad in Colorado questioning Steyer’s support for Udall, and groups such as American Crossroads, Americans For Prosperity and the U.S. Chamber of Commerce have run ads on the Keystone pipeline and energy in that state. Groups affiliated with the libertarian billionaire brothers Charles and David Koch have provided financial support for the opponents of all of the Senate candidates LCV is backing, a fact it has highlighted in five separate ads in four states.

Some of the ads LCV has run so far, such as ones attacking Iowa GOP Senate candidate Joni Ernst, address policies on education as much as the environment. Dan

Weiss, LCV's senior vice president for campaigns, said the group highlighted Ernst's support for eliminating the Education Department and Environmental Protection Agency because "we want to make it clear to lowans that she doesn't share their priorities."

And while the ads have been the most visible sign of green groups' spending, LCV will devote much of its resources to grass-roots efforts. Weiss said the group will have 2,000 people working in 19 offices and will contact 750,000 voters who typically don't vote in off-year elections in Alaska, Colorado, Iowa, New Hampshire and North Carolina.

David Willett

VP for Communications

League of Conservation Voters

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david_willett@lcv.org

@davidwillett

To: Shope, Elizabeth[eshope@nrdc.org]
Cc: Swift, Anthony[aswift@nrdc.org]; Droitsch, Danielle[ddroitsch@nrdc.org]
From: Shope, Elizabeth
Sent: Wed 10/15/2014 5:28:54 PM
Subject: Keystone XL update: Tar sands expansion projects cancelled & Canada slammed for poor climate record

Greetings,

We wanted to make sure you were aware of some recent developments in the debate around the proposed Keystone XL tar sands pipeline.

• **Evidence that the Keystone XL will enable substantial tar sands expansion and associated carbon emissions continue to mount.** Since February, three major tar sands operations have been canceled due to poor economic conditions, including Shell's 200,000 bpd Pierre River mine, Total's 160,000 bpd Joslyn mine and Statoil's 40,000 bpd Corner *in situ* project. Rising tar sands production costs, pipeline constraints and declining oil prices continue to make new tar sands projects risky investments. And as oil prices decline below \$85 per barrel, they have reached a level where new tar sands projects cannot break even without Keystone XL according to [State's environmental review](#). The dynamics of these cancellations and the slowing of tar sands development were discussed in [OnEarth](#) and by NRDC's Anthony Swift in his [blog](#).

• **Canada was slammed again for its poor international climate record.** This is yet another reason to reject the pipeline. [Canada's federal Auditor General released a report](#) last week concluding the Canadian government failed to pass meaningful climate legislation or make any progress toward meeting the country's 2020 greenhouse gas reduction goals. The key reason Canada can't meet its commitments is due to rising emissions from the tar sands sector. A useful summary of the report's highlights can be found [here](#).

• **Tar sands industry lobbies to water down Europe's clean fuels policy.** Europe adopted new rules – which still need to be adopted by European Parliament – which will require greater transparency surrounding the EU's fuel mix and will push suppliers to increase use of renewable and electric energy sources. Unfortunately, Canada and the tar sands industry watered down a new clean fuels policy in Europe designed to lower the carbon intensity of transport fuels by 6% by 2020. NRDC's Danielle Droitsch and Josh Axelrod provide more detail on the new measure in [their blog](#).

Best,

Elizabeth Shope | Advocate, International Program

Natural Resources Defense Council | www.NRDC.org

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Save paper. Think before printing.

From: Dan Weiss
Sent: Mon 11/24/2014 1:50:09 PM
Subject: ICYMI: Letter to the Editor rebutting Keystone claims published in today's Washington Post

http://www.washingtonpost.com/opinions/keystone-xl-pipeline-debate-must-stand-on-facts/2014/11/23/195c4e2c-71c2-11e4-a2c2-478179fd0489_story.html

November 23 at 8:17 PM

Charles Lane's Nov. 20 op-ed column, "[Keystone copout](#)," said progressives were "intellectually dishonest" about the Keystone XL pipeline. But his column was littered with distortions.

Mr. Lane claimed that the State Department found Keystone XL's oil was unlikely to be shipped overseas, even "in refined form." But the State Department acknowledged that some of the crude would be refined into petroleum products and exported. [The Post](#) and [others have reported](#) that all of Keystone's oil won't stay in the United States.

Mr. Lane also alleged that "Keystone XL would not boost greenhouse gas emissions significantly" because the Canadian tar sands will be developed "with or without Keystone XL." However, [rail transportation does not now have the capacity](#) to substitute for Keystone XL. Even if it did, the [State Department found the higher cost of rail](#) "could have a substantial impact" on tar sands production if oil prices fell below \$75 per barrel, as they have recently.

A careful look at the facts shows why we oppose this dirty and dangerous pipeline.

Daniel J. Weiss, Washington

The writer is senior vice president for campaigns at the League of Conservation Voters.

Daniel J. Weiss

Senior Vice President for Campaigns

League of Conservation Voters

202-454-4570 O

202-390-1807 M

Dan_Weiss@lcv.org

Twitter: @DanJWeiss

To: Mccarthy, Gina[McCarthy.Gina@epa.gov]
From: League of Conservation Voters
Sent: Wed 12/17/2014 4:33:45 PM
Subject: Take action to reduce methane pollution

Dec 17, 2014

Ms. Regina McCarthy
William Jefferson Clinton Federal Building, Room 3000
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Ms. McCarthy,

Thank you for all you've done to combat climate change. Your plan to limit carbon pollution from power plants is the biggest step the United States has ever taken to address the climate crisis. But as you know, carbon isn't the only greenhouse gas driving climate change. Even though methane only accounts for about 9% of U.S. greenhouse gas emissions, it has 80 times the warming potential of carbon over a 20 year time period. Reducing our methane emissions is a critical piece of solving the climate crisis.

I urge the EPA to use their existing authority under the Clean Air Act to directly regulate methane pollution across the oil and gas sector, which is the single largest industrial source of methane pollution. Taking action on this issue will both protect local communities from air pollution and reduce emissions that contribute to climate change.

Please address the urgent need to reduce methane pollution from the oil and gas industry to help ensure we leave a healthy planet for all future generations. Say NO to the Keystone (and all other proposed oil, LNG) pipeline. Think of the children with asthma.

Sincerely,

Ms. Barbara Davis

Ex. 6 - Personal Privacy

To: Mccarthy, Gina[McCarthy.Gina@epa.gov]
From: League of Conservation Voters
Sent: Wed 12/17/2014 2:31:57 PM
Subject: Take action to reduce methane pollution

Dec 17, 2014

Ms. Regina McCarthy
William Jefferson Clinton Federal Building, Room 3000
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Ms. McCarthy,

Thank you for all you've done to combat climate change. Your plan to limit carbon pollution from power plants is the biggest step the United States has ever taken to address the climate crisis. But as you know, carbon isn't the only greenhouse gas driving climate change. Even though methane only accounts for about 9% of U.S. greenhouse gas emissions, it has 80 times the warming potential of carbon over a 20 year time period. Reducing our methane emissions is a critical piece of solving the climate crisis.

I urge the EPA to use their existing authority under the Clean Air Act to directly regulate methane pollution

Please address the urgent need to reduce methane pollution from the oil and gas industry to help ensure we leave a healthy planet for all future generations.

Kill the Keystone.

Sincerely,

Dr. donald hnatoiwch

Ex. 6 - Personal Privacy

To: Beauvais, Joel[Beauvais.Joel@epa.gov]
From: Schmidt, Jake
Sent: Thur 12/18/2014 8:22:35 PM
Subject: NRDC-New Analysis on Climate Impacts of Keystone XL

Hi Joel,

NRDC and its partners are releasing a new memo today (see links below) on the climate impacts of the proposed Keystone XL tar sands pipeline.

As Republicans announced they would push legislation forcing approval of Keystone XL first thing in 2015, new information shows that the case for rejecting the proposed tar sands pipeline is stronger now than ever. The new analysis from by NRDC, Oil Change International, and others explains why it is clearer every day that tar sands expansion cannot happen without the Keystone XL pipeline – in other words, it's simply not true that more tar sands will be extracted with or without the pipeline. Transportation bottlenecks, the high cost of rail, rising costs of labor and capital, and the low cost of crude oil are forming a perfect storm that is leading to large tar sands project cancellations and an expected slowdown in industry growth. Industry is looking to Keystone XL to directly enable tar sands expansion, equivalent to the combined tailpipe emissions of every single car in America over an entire year.

In addition to the ways Keystone XL would worsen climate change, the pipeline would pose major risks to land and water resources. Tar sands sinks in water and does not respond to conventional oil spill technologies. The 2010 tar sands spill into Michigan's Kalamazoo River has never been fully cleaned up.

And as President Obama rightly pointed out, Keystone XL is not a job creator (less than 50 permanent jobs created); it's a foreign pipeline through the U.S. that will facilitate export of Canadian raw and refined tar sands oil to markets around the world. **The full case against the pipeline is outlined in a new NRDC backgrounder.** It is all risk – no reward. President Obama and Secretary Kerry must reject this pipeline as not in the national interest.

Best regards, Jake

Jake Schmidt | Director, International Program

Natural Resources Defense Council (NRDC) | www.NRDC.org

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phone: 202-289-2388 | mobile: 202-425-1515 | email: jschmidt@nrdc.org

Read my blog: <http://switchboard.nrdc.org/blogs/jschmidt>

Follow me on twitter: [jschmidtnrdc](https://twitter.com/jschmidtnrdc)

To: Droitsch, Danielle[ddroitsch@nrdc.org]; Swift, Anthony[aswift@nrdc.org]
From: Droitsch, Danielle
Sent: Thur 12/18/2014 11:25:12 AM
Subject: NRDC-New Analysis on Climate Impacts of Keystone XL

Hello – NRDC and its partners are releasing a new memo today on the climate impacts of the proposed Keystone XL tar sands pipeline.

As Republicans announced they would push legislation forcing approval of Keystone XL first thing in 2015, new information shows that the case for rejecting the proposed tar sands pipeline is stronger now than ever. The new analysis from by NRDC, Oil Change International, and others explains why it is clearer every day that tar sands expansion cannot happen without the Keystone XL pipeline – in other words, it's simply not true that more tar sands will be extracted with or without the pipeline. Transportation bottlenecks, the high cost of rail, rising costs of labor and capital, and the low cost of crude oil are forming a perfect storm that is leading to large tar sands project cancellations and an expected slowdown in industry growth. Industry is looking to Keystone XL to directly enable tar sands expansion, equivalent to the combined tailpipe emissions of every single car in America over an entire year.

In addition to the ways Keystone XL would worsen climate change, the pipeline would pose major risks to land and water resources. Tar sands sinks in water and does not respond to conventional oil spill technologies. The 2010 tar sands spill into Michigan's Kalamazoo River has never been fully cleaned up.

And as President Obama rightly pointed out, Keystone XL is not a job creator (less than 50 permanent jobs created); it's a foreign pipeline through the U.S. that will facilitate export of Canadian raw and refined tar sands oil to markets around the world. **The full case against the pipeline is outlined in a new NRDC backgrounder.** It is all risk – no reward. President Obama and Secretary Kerry must reject this pipeline as not in the national interest.

Danielle Droitsch

Canada Project Director, International Program

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phone: 202.513.6243 | cell: 202.413.0193 | email: ddroitsch@nrdc.org

Blog: <http://switchboard.nrdc.org/blogs/ddroitsch/>

To: Mccarthy, Gina[McCarthy.Gina@epa.gov]
From: League of Conservation Voters
Sent: Mon 12/29/2014 6:22:02 AM
Subject: Take action to reduce methane pollution

Dec 29, 2014

Ms. Regina McCarthy
William Jefferson Clinton Federal Building, Room 3000
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Ms. McCarthy,

Thank you for all you've done to combat climate change. Your plan to limit carbon pollution from power plants is the biggest step the United States has ever taken to address the climate crisis. But as you know, carbon isn't the only greenhouse gas driving climate change. Even though methane only accounts for about 9% of U.S. greenhouse gas emissions, it has 80 times the warming potential of carbon over a 20 year time period. Reducing our methane emissions is a critical piece of solving the climate crisis.

I urge the EPA to use their existing authority under the Clean Air Act to directly regulate methane pollution across the oil and gas sector, which is the single largest industrial source of methane pollution. Taking action on this issue will both protect local communities from air pollution and reduce emissions that contribute to climate change.

Please address the urgent need to reduce methane pollution from the oil and gas industry to help ensure we leave a healthy planet for all future generations.

Don't go forgetting to outright reject the Keystone XL pipeline now, Mr. president.

Sincerely,

Mr. Nathan Sullenberger

Ex. 6 - Personal Privacy

From: Dan Weiss
Sent: Tue 1/6/2015 7:30:53 PM
Subject: **LCV on Efforts by the New Congress to Force Approval of the Dangerous Keystone XL Pipeline
[removed.txt](#)

Daniel J. Weiss

Senior Vice President for Campaigns

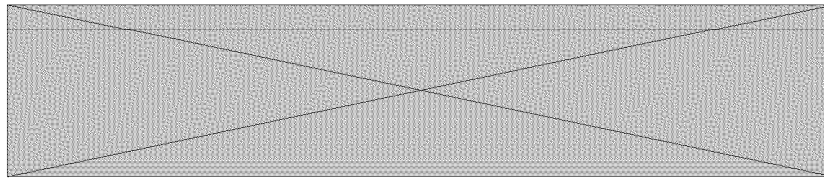
League of Conservation Voters

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202-390-1807 M

Dan_Weiss@lcv.org

Twitter: @DanJWeiss



FOR IMMEDIATE RELEASE

Tuesday, January 6, 2015

Contact: Jeff Gohringer, 202-454-4573 or Jeff_Gohringer@lcv.org

**LCV on Efforts by the New Congress to Force Approval of the
Dangerous Keystone XL Pipeline**

WASHINGTON, DC – League of Conservation Voters (LCV) Senior Vice President of

Government Affairs Tiernan Sittenfeld released this statement on efforts by the 114th Congress to force approval of the dangerous Keystone XL tar sands pipeline:

“President Obama continues to show real climate leadership by pledging to veto attempts by Congress to circumvent the process and we’re more confident than ever that he will reject this dirty, dangerous pipeline once and for all. It’s unfortunate that Republican leaders are starting the new Congress with the same old dangerous attempts to force approval of Keystone XL instead of focusing on measures to actually create jobs and transition to a clean energy economy. This is a chance for members of Congress to decide whether they’ll protect our planet for future generations or side with polluters who want to double down on the dirtiest oil on the planet.”

###

Jeff Gohringer

National Press Secretary

League of Conservation Voters

202-454-4573 | Jeff_Gohringer@LCV.org
@JGohringer

To: Barron, Alex[Barron.Alex@epa.gov]
From: Barratt-Brown, Liz
Sent: Thur 1/22/2015 3:39:38 PM
Subject: FW: EPA KXL package

FYI. This was sent to Assistant Administrator Giles this morning.

--

Liz Barratt-Brown
 Senior Advisor
 International Program
 Natural Resources Defense Council
 Lizbb@nrdc.org<mailto:Lizbb@nrdc.org>
<http://switchboard.nrdc.org/blogs/lizbb/>
 202-365-4716

From: Doniger, David
 Sent: Thursday, January 22, 2015 9:54 AM
 To: 'mailto:Giles-AA.Cynthia@epa.gov'
 Subject: EPA KXL package
 Importance: High

Dear Cindy,

I wanted to reach out to you about meeting with NRDC's tar sands team. I think you may already know them, Danielle Droitsch, Anthony Swift and Liz Barratt-Brown. They would like to talk with you about a recent memorandum <<http://switchboard.nrdc.org/blogs/ddroitsch/KeystoneFailsClimateTestMemoNRDC.pdf>> we've released with our partners, Oil Change International, showing that the State Department relied on outdated assumptions in reaching its conclusion in the FSEIS market analysis that Keystone XL would not have an impact on upstream carbon emissions. NRDC believes that the low probability scenario in the FSEIS has now become the driving scenario, largely because:

1. Oil prices have fallen below the \$75 a barrel level that State identified as a threshold at which Keystone XL would have "a substantial impact on tar sands expansion" <<http://switchboard.nrdc.org/blogs/ddroitsch/KeystoneFailsClimateTestMemoNRDC.pdf>> by enabling economically marginal projects to proceed.
2. Oil prices are expected to stay low for some time – Citi now predicts <<http://www.smh.com.au/business/mining-and-resources/citi-slashes-profit-forecasts-for-oil-producers-20150108-12jyv2.html>> oil prices below \$70 through 2016 and has set a \$75 a barrel price in its long term forecast. Meanwhile, IEA forecasts predict that with aggressive action on climate, global oil prices will peak <<http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/oliver-says-oil-sands-squeeze-a-boon-for-alberta/article22512412/>> in 2020.
3. More than 400,000 bpd of tar sands expansion were cancelled when oil prices were above \$90 a barrel <http://switchboard.nrdc.org/blogs/aswift/keystone_xl_matters.html>. As State recognized in its FSEIS, its \$75 a barrel threshold would increase with tar sands production costs – and production costs for the cheapest tar sands expansion projects increased by \$20 <<http://switchboard.nrdc.org/blogs/ddroitsch/KeystoneFailsClimateTestMemoNRDC.pdf>> a barrel from mid-2013 to mid-2014. Tar sands producers cited higher costs and pipeline constraints as a rational for cancelling expansion projects.
4. As oil prices have continued to decline, more than 600,000 bpd <http://switchboard.nrdc.org/blogs/aswift/keystone_xl_matters.html> in additional tar sands expansion projects have been canceled or put on hold.
5. Other tar sands export pipeline are facing steep opposition <http://switchboard.nrdc.org/blogs/lizbb/its_not_just_keystone_xl_-_cit.html> in the US and Canada.

6. Tar sands by rail to the

Gulf<<http://switchboard.nrdc.org/blogs/ddroitsch/KeystoneFailsClimateTestMemoNRDC.pdf>> has not proven to be a viable alternative to Keystone XL or other pipelines. Tar sands by rail has proven too expensive to be an economically viable substitute for either producers<http://switchboard.nrdc.org/blogs/aswift/tar_sands_train_to_ruin_how_ta.html> or rail companies<http://switchboard.nrdc.org/blogs/aswift/canexus_bruderheim_terminal_th.html>.

7. Meanwhile, a recent study in Nature found that tar sands development is incompatible<<http://www.theguardian.com/environment/2015/jan/07/much-worlds-fossil-fuel-reserve-must-stay-buried-prevent-climate-change-study-says>> with a level of fossil fuel extraction that is consistent with the IPCC's 2 degree warming scenario.

These issues are laid out in our recent reports and blogs, below.

I look forward to hearing from you. Thanks very much and hope you are doing well.

All best,

David

NRDC Reports / Factsheets

- Now More Than Ever: The Proposed Keystone XL Tar Sands Pipeline Fails the Climate Test<<http://switchboard.nrdc.org/blogs/ddroitsch/KeystoneFailsClimateTestMemoNRDC.pdf>> (a memorandum detailing how lower oil prices, rising tar sands production costs and transportation constraints make Keystone XL critical for tar sands expansion and associated carbon emissions)
 - Recent developments: The Keystone XL tar sands pipeline is not in the national interest<http://switchboard.nrdc.org/blogs/ddroitsch/Keystone%20XL%20fact%20sheet_December%202014_FINAL.pdf> (highlighting in brief why Keystone XL is not in the nation's interest)
 - A Tale of Two Countries: Comparing the United States' and Canada's Clean Energy Spending and Progress on International Climate Commitments<-%09http://switchboard.nrdc.org/blogs/aswift/Backgrounder_US%20vs%20Canada%20Clean%20Energy%20Spending%20%26%20Climate%20Action%20Sept%202018_0.pdf> (highlighting Canada's failure to honor its climate commitments and the tar sands sector role in that failure)
- NRDC Blogs:

- Keystone XL's Substantial Importance<http://switchboard.nrdc.org/blogs/aswift/keystone_xl_matters.html> (highlighting recent tar sands expansion cancelations due to pipeline constraints and deteriorating market conditions)
- Tar Sands Train to Ruin<http://switchboard.nrdc.org/blogs/aswift/tar_sands_train_to_ruin_how_ta.html> (detailing how the first producer to sign long term contracts to ship tar sands by rail to the Gulf has been driven to the brink of bankruptcy by high transportation costs)
- The tar sands train that couldn't<http://switchboard.nrdc.org/blogs/aswift/canexus_bruderheim_terminal_th.html> (highlighting problems with one of the first tar sands by rail companies, leading it to lose most of its market value and attempt to sell its Alberta terminal)
- Canada lags the United States on climate and clean energy<http://switchboard.nrdc.org/blogs/aswift/canada_lags_the_united_states.html>
- Citing pipeline constraints, Statoil postpones tar sands expansion project<http://switchboard.nrdc.org/blogs/aswift/citing_pipeline_constraints_st.html>
- It's not just Keystone XL - citizen protests are slowing other major tar sands pipelines too<http://switchboard.nrdc.org/blogs/lizbb/its_not_just_keystone_xl_-_cit.html>

- Nature article: Tar sands pipelines have global impacts and now is the time to improve how we review them<http://switchboard.nrdc.org/blogs/ddroitsch/new_polls_show_major_shift_in_.html> (highlighting an opinion article in Nature magazine by eight leading scientists and economists in Canada arguing that tar sands pipelines have global impacts but the process to consider them is flawed).
- Mounting evidence of health concerns near tar sands development<http://switchboard.nrdc.org/blogs/ddroitsch/mounting_evidence_of_health_co.html> (highlighting two studies linking tar sands development to
- EPA Unlikely to Buy Argument that Keystone XL Will Not Worsen Climate Change: Agency Concerns Were Ignored<http://switchboard.nrdc.org/blogs/ddroitsch/epa_unlikely_to_buy_argument_t.html> (highlighting how State treated various issues raised by EPA)
- More than 100 scientists and economists call for rejection of Keystone XL tar sands pipeline<http://switchboard.nrdc.org/blogs/eshope/more_than_100_scientists_and_e.html> (describing a letter by over 100 scientists and economists calling on the Administration to reject Keystone XL).
Other Reports / Blogs:
- Oil Change International & Institute for Energy Economics and Financial Analysis, Material Risks: How Public Accountability Is Slowing Tar Sands Development<http://priceofoil.org/content/uploads/2014/10/IEEFA.OCI_Material-Risks-FINweb2-1.pdf> (Oct. 2014): This report looks at the impact that the campaign blocking pipelines is having on tar sands expansion – it shows that the inability of industry to push forward Keystone XL has fundamentally affected the profitability of new tar sands projects.
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- Stockholm Environment Institute, Impact of the Keystone XL pipeline on global oil markets and greenhouse gas emissions<http://www.sei-us.org/Publications_PDF/SEI-WP-2013-11-KeystoneXL-price-effects.pdf>, Nature Climate Change, Feb. 2014 (a study concluding that State Department's review of KXL ignored the demand inducing impact of the project, which could increase its annual carbon emissions by as much as 110 million metric tons CO₂e).

To: 'Doniger, David'[ddoniger@nrdc.org]
From: Giles-AA, Cynthia
Sent: Thur 1/22/2015 6:16:51 PM
Subject: RE: EPA KXL package

Thanks David. I am not taking any meetings on Keystone XL but appreciate your interest.

Cynthia Giles

Assistant Administrator

EPA Office of Enforcement and Compliance Assurance

1200 Pennsylvania Ave., NW

Washington, D.C. 20008

(202) 564-2440

From: Doniger, David [mailto:ddoniger@nrdc.org]
Sent: Thursday, January 22, 2015 10:00 AM
To: Giles-AA, Cynthia
Subject: EPA KXL package
Importance: High

Dear Cindy,

I wanted to reach out to you about meeting with NRDC's tar sands team. I think you may already know them, Danielle Droitsch, Anthony Swift and Liz Barratt-Brown.

They would like to talk with you about [a recent memorandum](#) we've released with our partners, Oil Change International, showing that the State Department relied on outdated assumptions in reaching its conclusion in the FSEIS market analysis that Keystone XL would not have an impact on upstream carbon emissions.

NRDC believes that the low probability scenario in the FSEIS has now become the driving scenario, largely because:

1. Oil prices have fallen below the \$75 a barrel level that State identified as a threshold at which Keystone XL would have "[a substantial impact on tar sands expansion](#)" by enabling economically marginal projects to proceed.
2. Oil prices are expected to stay low for some time – Citi [now predicts](#) oil prices below \$70

- through 2016 and has set a \$75 a barrel price in its long term forecast. Meanwhile, IEA forecasts predict that with aggressive action on climate, global oil prices will peak in 2020.
3. More than 400,000 bpd of tar sands expansion were cancelled when oil prices were above \$90 a barrel. As State recognized in its FSEIS, its \$75 a barrel threshold would increase with tar sands production costs – and production costs for the cheapest tar sands expansion projects increased by \$20 a barrel from mid-2013 to mid-2014. Tar sands producers cited higher costs and pipeline constraints as a rational for cancelling expansion projects.
 4. As oil prices have continued to decline, more than 600,000 bpd in additional tar sands expansion projects have been canceled or put on hold.
 5. Other tar sands export pipeline are facing steep opposition in the US and Canada.
 6. Tar sands by rail to the Gulf has not proven to be a viable alternative to Keystone XL or other pipelines. Tar sands by rail has proven too expensive to be an economically viable substitute for either producers or rail companies.
 7. Meanwhile, a recent study in Nature found that tar sands development is incompatible with a level of fossil fuel extraction that is consistent with the IPCC's 2 degree warming scenario.

These issues are laid out in our recent reports and blogs, below.

I look forward to hearing from you. Thanks very much and hope you are doing well.

All best,

David

NRDC Reports / Factsheets

- Now More Than Ever: The Proposed Keystone XL Tar Sands Pipeline Fails the Climate Test (a memorandum detailing how lower oil prices, rising tar sands production costs and transportation constraints make Keystone XL critical for tar sands expansion and associated carbon emissions)
- Recent developments: The Keystone XL tar sands pipeline is not in the national interest (highlighting in brief why Keystone XL is not in the nation's interest)

- A Tale of Two Countries: Comparing the United States' and Canada's Clean Energy Spending and Progress on International Climate Commitments (highlighting Canada's failure to honor its climate commitments and the tar sands sector role in that failure)

NRDC Blogs:

- Keystone XL's Substantial Importance (highlighting recent tar sands expansion cancelations due to pipeline constraints and deteriorating market conditions)
- Tar Sands Train to Ruin (detailing how the first producer to sign long term contracts to ship tar sands by rail to the Gulf has been driven to the brink of bankruptcy by high transportation costs)
- The tar sands train that couldn't (highlighting problems with one of the first tar sands by rail companies, leading it to lose most of its market value and attempt to sell its Alberta terminal)
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- It's not just Keystone XL - citizen protests are slowing other major tar sands pipelines too
- Nature article: Tar sands pipelines have global impacts and now is the time to improve how we review them (highlighting an opinion article in Nature magazine by eight leading scientists and economists in Canada arguing that tar sands pipelines have global impacts but the process to consider them is flawed).
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- EPA Unlikely to Buy Argument that Keystone XL Will Not Worsen Climate Change: Agency Concerns Were Ignored (highlighting how State treated various issues raised by EPA)
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Other Reports / Blogs

- Oil Change International & Institute for Energy Economics and Financial Analysis, Material Risks: How Public Accountability Is Slowing Tar Sands Development (Oct. 2014): This report looks at the impact that the campaign blocking pipelines is having on tar sands expansion – it shows that the inability of industry to push forward Keystone XL has fundamentally affected the profitability of new tar sands projects.
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To: Giles-AA, Cynthia[Giles-AA.Cynthia@epa.gov]
From: Doniger, David
Sent: Thur 1/22/2015 2:59:50 PM
Subject: EPA KXL package

Dear Cindy,

I wanted to reach out to you about meeting with NRDC's tar sands team. I think you may already know them, Danielle Droitsch, Anthony Swift and Liz Barratt-Brown.

They would like to talk with you about a recent memorandum we've released with our partners, Oil Change International, showing that the State Department relied on outdated assumptions in reaching its conclusion in the FSEIS market analysis that Keystone XL would not have an impact on upstream carbon emissions.

NRDC believes that the low probability scenario in the FSEIS has now become the driving scenario, largely because:

1. Oil prices have fallen below the \$75 a barrel level that State identified as a threshold at which Keystone XL would have "a substantial impact on tar sands expansion" by enabling economically marginal projects to proceed.
2. Oil prices are expected to stay low for some time – Citi now predicts oil prices below \$70 through 2016 and has set a \$75 a barrel price in its long term forecast. Meanwhile, IEA forecasts predict that with aggressive action on climate, global oil prices will peak in 2020.
3. More than 400,000 bpd of tar sands expansion were cancelled when oil prices were above \$90 a barrel. As State recognized in its FSEIS, its \$75 a barrel threshold would increase with tar sands production costs – and production costs for the cheapest tar sands expansion projects increased by \$20 a barrel from mid-2013 to mid-2014. Tar sands producers cited higher costs and pipeline constraints as a rational for cancelling expansion projects.
4. As oil prices have continued to decline, more than 600,000 bpd in additional tar sands expansion projects have been canceled or put on hold.
5. Other tar sands export pipeline are facing steep opposition in the US and Canada.
6. Tar sands by rail to the Gulf has not proven to be a viable alternative to Keystone XL or other pipelines. Tar sands by rail has proven too expensive to be an economically viable substitute for either producers or rail companies.
7. Meanwhile, a recent study in Nature found that tar sands development is incompatible with a level of fossil fuel extraction that is consistent with the IPCC's 2 degree warming scenario.

These issues are laid out in our recent reports and blogs, below.

I look forward to hearing from you. Thanks very much and hope you are doing well.

All best,

David

NRDC Reports / Factsheets

- Now More Than Ever: The Proposed Keystone XL Tar Sands Pipeline Fails the Climate Test (a memorandum detailing how lower oil prices, rising tar sands production costs and transportation constraints make Keystone XL critical for tar sands expansion and associated carbon emissions)
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NRDC Blogs:

- Keystone XL's Substantial Importance (highlighting recent tar sands expansion cancelations due to pipeline constraints and deteriorating market conditions)
- **Tar Sands Train to Ruin** (detailing how the first producer to sign long term contracts to ship tar sands by rail to the Gulf has been driven to the brink of bankruptcy by high transportation costs)
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- Citing pipeline constraints, Statoil postpones tar sands expansion project

- It's not just Keystone XL - citizen protests are slowing other major tar sands pipelines too
- Nature article: Tar sands pipelines have global impacts and now is the time to improve how we review them (highlighting an opinion article in Nature magazine by eight leading scientists and economists in Canada arguing that tar sands pipelines have global impacts but the process to consider them is flawed).
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- EPA Unlikely to Buy Argument that Keystone XL Will Not Worsen Climate Change: Agency Concerns Were Ignored (highlighting how State treated various issues raised by EPA)
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markets and greenhouse gas emissions, Nature Climate Change, Feb. 2014 (a study concluding that State Department's review of KXL ignored the demand inducing impact of the project, which could increase its annual carbon emissions by as much as 110 million metric tons CO₂e).

To: Bromm, Susan[Bromm.Susan@epa.gov]
From: Barratt-Brown, Liz
Sent: Thur 1/22/2015 3:37:45 PM
Subject: FW: EPA KXL package

FYI. This was sent to Administrator Giles this morning.

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Liz Barratt-Brown
 Senior Advisor
 International Program
 Natural Resources Defense Council
 Lizbb@nrdc.org<mailto:Lizbb@nrdc.org>
<http://switchboard.nrdc.org/blogs/lizbb/>
 202-365-4716

From: Doniger, David
 Sent: Thursday, January 22, 2015 9:54 AM
 To: 'mailto:Giles-AA.Cynthia@epa.gov'
 Subject: EPA KXL package
 Importance: High

Dear Cindy,

I wanted to reach out to you about meeting with NRDC's tar sands team. I think you may already know them, Danielle Droitsch, Anthony Swift and Liz Barratt-Brown. They would like to talk with you about a recent memorandum <<http://switchboard.nrdc.org/blogs/ddroitsch/KeystoneFailsClimateTestMemoNRDC.pdf>> we've released with our partners, Oil Change International, showing that the State Department relied on outdated assumptions in reaching its conclusion in the FSEIS market analysis that Keystone XL would not have an impact on upstream carbon emissions. NRDC believes that the low probability scenario in the FSEIS has now become the driving scenario, largely because:

1. Oil prices have fallen below the \$75 a barrel level that State identified as a threshold at which Keystone XL would have "a substantial impact on tar sands expansion" <<http://switchboard.nrdc.org/blogs/ddroitsch/KeystoneFailsClimateTestMemoNRDC.pdf>> by enabling economically marginal projects to proceed.
2. Oil prices are expected to stay low for some time – Citi now predicts <<http://www.smh.com.au/business/mining-and-resources/citi-slashes-profit-forecasts-for-oil-producers-20150108-12jyv2.html>> oil prices below \$70 through 2016 and has set a \$75 a barrel price in its long term forecast. Meanwhile, IEA forecasts predict that with aggressive action on climate, global oil prices will peak <<http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/oliver-says-oil-sands-squeeze-a-boon-for-alberta/article22512412/>> in 2020.
3. More than 400,000 bpd of tar sands expansion were cancelled when oil prices were above \$90 a barrel <http://switchboard.nrdc.org/blogs/aswift/keystone_xl_matters.html>. As State recognized in its FSEIS, its \$75 a barrel threshold would increase with tar sands production costs – and production costs for the cheapest tar sands expansion projects increased by \$20 <<http://switchboard.nrdc.org/blogs/ddroitsch/KeystoneFailsClimateTestMemoNRDC.pdf>> a barrel from mid-2013 to mid-2014. Tar sands producers cited higher costs and pipeline constraints as a rational for cancelling expansion projects.
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Gulf<<http://switchboard.nrdc.org/blogs/ddroitsch/KeystoneFailsClimateTestMemoNRDC.pdf>> has not proven to be a viable alternative to Keystone XL or other pipelines. Tar sands by rail has proven too expensive to be an economically viable substitute for either producers<http://switchboard.nrdc.org/blogs/aswift/tar_sands_train_to_ruin_how_ta.html> or rail companies<http://switchboard.nrdc.org/blogs/aswift/canexus_bruderheim_terminal_th.html>.

7. Meanwhile, a recent study in Nature found that tar sands development is incompatible<<http://www.theguardian.com/environment/2015/jan/07/much-worlds-fossil-fuel-reserve-must-stay-buried-prevent-climate-change-study-says>> with a level of fossil fuel extraction that is consistent with the IPCC's 2 degree warming scenario.

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I look forward to hearing from you. Thanks very much and hope you are doing well.

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David

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